



**Beaverhead West Watershed
Environmental Assessment
MT-050-07-EA-70
Dillon Field Office
June 30, 2008**



Middle Fork of Gallagher Creek; July 2007.

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1.0 Purpose of and Need for the Proposed Action

1.1 Introduction and Background

The Beaverhead West Watershed (BWW) is primarily located in Beaverhead County, Montana and drains portions of the Blacktail and Pioneer mountain ranges. The watershed lies within Townships 5-10 South and Ranges 8-13 West, Montana Principal Meridian (MPM.). All legal descriptions in this document are based off of the MPM.

The BWW covers public lands administered by the Bureau of Land Management (BLM) from Big Hole Pass in the west to Beaverhead Rock in the east, and from Birch Creek and the Big Hole River in the north, south to Divide Creek in the Blacktail Mountains. The assessment area boundary, shown on Map 1, Beaverhead West Allotments, in Appendix, follows grazing allotment boundaries and includes some allotments that are only partially within the watershed. Technically, the assessed area is not a distinct watershed. Watersheds are defined, and designated on maps, by natural topographical boundaries (i.e., ridgelines, drainages). Grazing allotment boundaries are determined by land ownership and these artificial boundaries may not follow topographical features. Therefore, some of the grazing allotments in the assessment area fall within one or more watersheds or hydrologic units. Grazing allotments within these watersheds have been completed in other assessments (e.g., East Grasshopper, Reservoir Creek, and Blacktail).

Within the BWW there are approximately 158,685 total acres of land, of which 92,109 are public lands administered by the BLM. Of the total BLM-administered lands, 90,076 acres are allotted for livestock grazing and 2,033 acres are unallotted.

In 2007, a BLM interdisciplinary (ID) team assessed the land health of BLM administered land in the BWW. The ID team assessed the following 5 Rangeland (Land) Health Standards: Upland Health, Riparian Health, Water Quality, Air Quality, and providing for Biodiversity. The Watershed Assessment reported the condition/function of resources within the assessment area to the Authorized Officer. The Authorized Officer considered the Assessment Report to determine whether Land Health Standards (Standards) were met, and then signed a Determination of Standards documenting where Standards were or were not met. The Assessment Report and associated Determination of Standards for the BWW were completed and released to the public in December, 2007, and are available at the Dillon Field Office or can be accessed online at http://www.blm.gov/mt/st/en/fo/dillon_field_office.html

The assessed condition/function and recommendations in the Assessment Report and Determination of Standards, along with comments received through public scoping, have been used to develop alternatives to initiate progress towards Proper Functioning Condition (PFC) and address site specific resource concerns where needed. This Environmental Assessment (EA) was completed in accordance with established procedures to analyze and implement area, allotment, or site specific changes.

By working on a watershed basis, a broader landscape is considered and more consistent management can be applied. It is the BLM's intent to implement watershed management

cooperatively. Changes in management will be implemented through the BLM's decision process.

1.2 Purpose of the Proposed Action

The BLM Dillon Field Office proposes to improve land health and enhance biodiversity in the BWW. Land health would be improved on public lands within the BWW by:

- Restoring/maintaining upland health and sagebrush habitats (species composition and structure) through revised livestock grazing management, structural projects, and vegetative treatments.
- Restoring/maintaining riparian, wetland and aquatic habitats (vegetation composition, structure, streambank stability, channel morphology) through revised livestock grazing management, structural projects, vegetative treatments, working cooperatively with Montana Fish, Wildlife and Parks (FWP) on wildlife management and improved road maintenance practices.
- Restoring and/or maintaining historic density, structure, and species composition of forest, woodland and aspen habitats through mechanical treatments and prescribed fire.

This EA analyzes livestock grazing management revisions, in addition to analyzing proposals to address forest and woodland health issues, travel management, recreation and wilderness opportunities, and wildlife resources. BLM also proposes to renew term grazing permits on 51 allotments. Management revisions and/or vegetative or structural projects will be considered on the following 26 allotments and unallotted parcels:

- | | |
|--------------------|------------------------------|
| 1. Anderson Field | 14. Holland-Carroll Isolated |
| 2. Antelope Butte | 15. Kennison Spring |
| 3. Argenta Flats | 16. Krueger Creek |
| 4. Beaverhead Rock | 17. Meine Cow Camp |
| 5. Bell Ranch | 18. PHW Allotment |
| 6. Big Hole Road | 19. Polaris |
| 7. B-Rock | 20. Rattlesnake |
| 8. Burns Mountain | 21. Rebich #2 |
| 9. Conover AMP | 22. Red Mine |
| 10. Farlin Creek | 23. Red Spring |
| 11. Flynn Draw | 24. Rocky Hills |
| 12. Frying Pan | 25. Scudder Creek AMP |
| 13. Gallagher | 26. West Big Hole Road |

1.3 Need for the Action

The Fundamentals of Rangeland Health and subsequent Land Health Standards require the BLM to initiate management actions that ensure, "Watersheds are in, or are making significant progress toward, properly functioning condition, including their upland, riparian-wetland, and aquatic components..." (43 CFR 4180.1 (a)), if an assessment determines one or more of the Land Health Standards are not being met. In the BWW Assessment Report, the ID team described several causal factors combining to negatively impact the biological, physical, and ecological processes in the watershed. As a result, the Authorized Officer determined that one or

more of the Standards are not met in 16 of the 51 assessed allotments and the unallotted Eli Spring and Ney Ranch parcels. Table 1.1 lists the 51 allotments, as well as the unallotted parcels, and shows the determination of each standard by allotment.

Table 1.1: Determination of Standards by Allotment

ALLOTMENT NAME, NUMBER, CATEGORY, & BLM ACRES	ARE LAND HEALTH STANDARDS BEING MET?				
	UPLAND	RIPARIAN WETLAND	WATER QUALITY	AIR QUALITY	BIO- DIVERSITY
Anderson Field, 30026, (M), Acres: 6,194	Yes	Yes	¹	Yes	Yes
Antelope Butte, 10118, (C), Acres: 414	No	N/A	N/A	Yes	No
Argenta Flats, 10687, (C), Acres: 1,445	Yes	N/A	N/A	Yes	Yes
Bachelor Mountain, 30608, (C), Acres: 85	Yes	N/A	N/A	Yes	Yes
Barretts, 30014, (M), Acres: 1,592	Yes	N/A	N/A	Yes	Yes
Beaverhead Rock, 20537, (C), Acres: 124	No	N/A	N/A	Yes	Yes
Bell Ranch, 20197, (I), Acres: 2,328	Yes	Yes	¹	Yes	Yes
Big Hole Road, 10135, (C), Acres: 795	Yes	N/A	N/A	Yes	Yes
B-Rock, 20599, (C), Acres: 44	No	N/A	N/A	Yes	No
Browns Canyon, 20194, (C), Acres: 123	Yes	N/A	N/A	Yes	Yes
Bryan, 10459, (I), Acres: 911	Yes	Yes	No	Yes	Yes
Burns Mountain, 10160, (C), Acres: 1,158	Yes	N/A	N/A	Yes	Yes
Buzztail, 20161, (C), Acres: 551	Yes	N/A	N/A	Yes	Yes
Conover AMP, 10117, (M), Acres: 4,268	Yes	Yes	¹	Yes	Yes
Farlin Creek, 20191, (I), Acres: 1,906	Yes	No	No	Yes	No ²
Flynn Draw, 20538, (C), Acres: 420	Yes	No	¹	Yes	Yes
Frying Pan, 10131, (I), Acres: 2,785	No	N/A	N/A	Yes	Yes
Frying Pan Basin, 30691, (C), Acres: 131	Yes	N/A	N/A	Yes	Yes
Gallagher, 20114, (M), Acres: 5,045	Yes	No	¹	Yes	Yes
Gallagher Mtn. AMP, 30013, (I), Acres: 14,214	Yes	Yes	¹	Yes	Yes

ALLOTMENT NAME, NUMBER, CATEGORY, & BLM ACRES	ARE LAND HEALTH STANDARDS BEING MET?				
	UPLAND	RIPARIAN WETLAND	WATER QUALITY	AIR QUALITY	BIO- DIVERSITY
Grasshopper, 30600, (M), Acres: 602	Yes	Yes	¹	Yes	Yes
Hayden, 10134, (C), Acres: 33	Yes	N/A	N/A	Yes	Yes
Henneberry Ridge Cust., 20634, (C), Acres: 103	Yes	N/A	N/A	Yes	Yes
Henneberry Ridge #2, 20171, (M), Acres: 1,146	Yes	N/A	N/A	Yes	Yes
Hildreth Individual, 30103, (C), Acres: 616	Yes	N/A	N/A	Yes	Yes
Hogback, 20486, (M), Acres: 2,393	Yes	N/A	N/A	Yes	Yes
Holland-Carroll Isolated, 30618, (C), Acres: 468	Yes	Yes	No	Yes	Yes
Kennison Spring, 20182, (M), Acres: 1,173	Yes	N/A	N/A	Yes	Yes
Krueger Creek, 10139, (M), Acres: 146	Yes	Yes	¹	Yes	No ²
Lovells Lk Non-AMP, 30605, (C), Acres: 229	Yes	N/A	N/A	Yes	Yes
Lower Reservoir Cr., 760, (C), Acres: 231	Yes	N/A	N/A	Yes	Yes
Meine, 20544, (C), Acres: 71	Yes	Yes	¹	Yes	Yes
Meine Cow Camp, 20113, (M), Acres: 333	Yes	N/A	N/A	Yes	Yes
Meine Homestead, 03146, (C), Acres: 56	Yes	Yes	¹	Yes	Yes
PHW Allotment, 30031, (I), Acres: 9,067	Yes	No	¹	Yes	Yes
Pipe Organ Rock, 10110, (M), Acres: 1,078	Yes	N/A	N/A	Yes	Yes
Polaris, 20186, (C), Acres: 198	Yes	N/A	N/A	Yes	Yes
Rattlesnake, 10510, (C), Acres: 1,642	No	Yes	No	Yes	Yes
Rebich, 20174, (C), Acres: 309	Yes	Yes	¹	Yes	Yes
Rebich #2, 20184, (C), Acres: 1,069	Yes	N/A	N/A	Yes	Yes
Red Mine, 30034, (I), Acres: 3,705	Yes	No	No	Yes	Yes
Red Spring, 10120, (M), Acres: 1,705	Yes	N/A	N/A	Yes	Yes

ALLOTMENT NAME, NUMBER, CATEGORY, & BLM ACRES	ARE LAND HEALTH STANDARDS BEING MET?				
	UPLAND	RIPARIAN WETLAND	WATER QUALITY	AIR QUALITY	BIO- DIVERSITY
Rocky Hills, 10148, (I) Acres: 15,906	Yes	No	¹	Yes	Yes
Scudder Creek AMP, 30028, (I) Acres: 666	No	N/A	N/A	Yes	No
Selkirk, 20188, (C), Acres: 471	Yes	N/A	N/A	Yes	Yes
Shale Creek, 20718, (C), Acres: 285	Yes	Yes	¹	Yes	No ²
Slanger, 20712, (C), Acres: 266	Yes	N/A	N/A	Yes	Yes
Small Horn Canyon, 20722, (M), Acres: 504	Yes	N/A	N/A	Yes	Yes
Timber Butte Isolated, 30632, (C), Acres: 249	Yes	N/A	N/A	Yes	Yes
Tucker Creek, 20480, (C), Acres: 41	Yes	Yes	¹	Yes	Yes
West Big Hole Road, 10503, (C), Acres: 782	Yes	N/A	N/A	Yes	Yes
Unalloted – Eli Spring Acres: 643	Yes	No	N/A	Yes	Yes
Unalloted – Ney Ranch Acres: 234	Yes	Yes	No	Yes	Yes
Unalloted Acres: 1,156	Yes	Yes	N/A	Yes	Yes
¹ The Montana Department of Environmental Quality (DEQ) has been given the responsibility for making water quality determinations and has completed its evaluation of 303(d)-listed streams. Tributary streams in the BWW are not on the 303(d) list, are not priority streams, and are not scheduled to be evaluated by the DEQ. ² The scope and scale of forest health, conifer expansion, and heavy fuel loading affected the biodiversity of the landscape.					

Since Land Health Standards were not met in some areas due to unhealthy forest and hazardous fuels conditions, “other program guidance for the appropriate steps to be taken” to make progress toward meeting Standards (as referenced in H-4180-1) includes the Healthy Forests Restoration Act, the Healthy Forests Initiative, the National Fire Plan and the Dillon Fire Management Plan to implement appropriate treatments. Treatment of hazardous fuels and salvage of bug-killed timber in the Shale Creek and Krueger Creek Allotments was previously analyzed in the Forest Service Grasshopper Fuels Management Environmental Impact Statement (EIS) completed in 2005. Additional prescribed fire, commercial and non-commercial mechanical treatments are being proposed, where appropriate, to restore some measure of resiliency in other areas of the watershed. One of the emphasis items of the National Fire Plan, the Healthy Forests Initiative, and the 10-year cohesive strategy is to reduce hazardous fuel accumulations and restore the health and natural processes within forests and rangelands. The objectives are to reduce the risks of catastrophic wildland fire to people, communities, and natural resources while restoring forest and rangeland ecosystems to closely match their historical structure, function, diversity and dynamics.

1.4 Scope of this Environmental Analysis – Scope, Plan Conformance, Critical Elements, and Issues

1.4.1 Scope

The scope of the proposed action includes implementing specific use of herbaceous vegetation through authorizing livestock grazing and implementing vegetation treatments to restore specific habitats on public lands. The proposed action also includes installation, construction, removal or modification of specific structural projects such as fences and water developments. The proposed action is not an all-inclusive management plan for the area or a programmatic EA, but it addresses several program areas that affect land health.

1.4.2 Conformance with BLM Land Use Plans, Programs, and Policies

The public lands included in the BWW are managed according to decisions in the Dillon Resource Management Plan (RMP) approved in 2006. The proposed action is in conformance with the RMP and applicable guidance is in the Record of Decision and Approved Dillon RMP on pages 24 through 74. The Dillon RMP can be accessed using the internet at http://www.blm.gov/mt/st/en/fo/dillon_field_office/rmp.html. This document is tiered to the Proposed Dillon RMP and Final EIS.

The proposed action is also in conformance with the Federal Land Policy and Management Act, the Taylor Grazing Act, the Standards for Rangeland Health and Guidelines for Grazing Management (43 CFR 4180), the Interim Management Policy for Lands Under Wilderness Review, and with BLM policies and Federal regulations.

The proposed action was developed while considering the goals, objectives and management recommendations in the Memorandum of Understanding and Conservation Agreement for Westslope Cutthroat Trout in Montana, the BLM's National Sage-grouse Strategy, and the Management Plan and Conservation Strategies for Sage Grouse in Montana.

1.4.3 Critical Elements of the Human Environment

Critical Elements of the Human Environment, as defined by BLM Manual 1790-1, must be considered in all BLM EAs and EISs. The Critical Elements that may be affected by the alternatives described in Chapter 2 were identified through the scoping process and are presented in Table 1.2.

Table 1.2: Critical Elements of the Human Environment

CRITICAL ELEMENT	NOT PRESENT	PRESENT, BUT NOT AFFECTED	MAY BE AFFECTED*	COMMENTS
Air Quality			X	Discussed under Sections 4.2.1 and 4.2.3
Areas of Critical Environmental Concern (ACECs)			X	The Beaverhead Rock and Block Mountain ACECs are discussed under Critical Element: Areas of Critical Environmental Concern
Cultural Resources		X		Discussed under Sections 2.3.1 and 3.2.7
Environmental Justice		X		
Farmlands (prime or unique)	X			

CRITICAL ELEMENT	NOT PRESENT	PRESENT, BUT NOT AFFECTED	MAY BE AFFECTED*	COMMENTS
Floodplains ¹			X	Discussed under Issue #2 – Riparian, Wetland and Aquatic Habitat, and Associated Species
Hazardous and Solid Wastes	X			
Invasive Non-native Species			X	Discussed under Issue #1 – Upland Health, Sagebrush Steppe Habitat, and Associated Species
Native American Religious Concerns	X			
Threatened, & Endangered Species			X	See Beaverhead West EA Biological Evaluation (incl. BLM sensitive species)
Water Quality (drinking or ground)			X	Discussed under Issue #2 – Riparian, Wetland and Aquatic Habitat, and Associated Species
Wetlands/Riparian Zones			X	Discussed under Issue #2 – Riparian, Wetland and Aquatic Habitat, and Associated Species
Wild and Scenic Rivers	X			
Wilderness Characteristics			X	The Farlin Creek and Henneberry Ridge Wilderness Study Areas are discussed in Chapters 1, 3, and 4.
<p>* An “X” in this box means that the resource is further evaluated in the affected environment and environmental impacts sections.</p> <p>¹ Floodplains are part of stream systems. Actions which improve streams and riparian habitats will comply with Executive Order 11988 in that they are designed to restore and preserve the natural and beneficial values served by floodplains.</p>				

1.4.4 Description of Issues, Resource Concerns, Critical Elements and Objectives

Issues, as described below, have a direct bearing upon the proposed action and the process of how the purpose and need will be achieved. The identified issues are used to drive development of alternatives, and effects to these issues are analyzed in detail. Resource concerns do not drive the development of alternatives, but are used to analyze and disclose the effects of various actions. Issues and resource concerns were identified through the Watershed Assessment and scoping process. Not all issues identified below are applicable to all the allotments or unallotted tracts in this EA.

Issue #1: Upland Health, Sagebrush Steppe Habitat and Associated Species

“Uplands are in Proper Functioning Condition” is identified as one of the Western Montana Standards for Rangeland Health. The determination of upland health was based on the evaluation of three criteria: degree of soil stability and watershed function, nutrient cycles and energy flows, and available recovery mechanisms. The indicators used to determine upland health are discussed in the BWW Assessment Report.

Objectives:

- Increase cover and frequency of native perennial cool-season herbaceous species where concerns were documented.

- Prevent spread of noxious and invasive species into and within the watershed and reduce or eradicate existing infestations.
- Maintain residual herbaceous cover for ground nesting birds, specifically sage grouse.
- Manage sagebrush habitats so that 70% or more of potential big sagebrush communities provide the vegetative composition and structure to sustain sage grouse populations and other sagebrush obligate species such as pronghorn antelope and pygmy rabbits.
- Maintain 15-25% sagebrush canopy cover and herbaceous cover conducive to nesting and brood-rearing success surrounding leks, as applicable within site potential.
- Restore or maintain grassland and shrubland habitat types affected by conifer expansion.
- Where possible, salvage dead/dying forest stands from epidemic insect activity and treat remaining stands to increase their resilience to insect activity. Utilize resulting forest products where feasible.

Issue #2: Riparian, Wetland, and Aquatic Habitat and Associated Species

“Riparian and Wetland Areas are in Proper Functioning Condition” is identified as one of the Western Montana Standards for Rangeland Health. PFC is defined as the ability of a stream or wetland to perform its riparian functions. These functions include sediment filtering, bank building, water storage, aquifer recharge and hydrologic energy dissipation. Streams or wetlands that are categorized as PFC or Functioning-at-Risk (FAR) with an upward trend meet the riparian health Standard. The indicators used to determine riparian health are discussed in the BWW Assessment Report.

The riparian health standard was **not** met in six allotments and the unallotted Eli Spring parcel. The BWW Assessment Report documents several contributing causal factors including fire exclusion, livestock impacts, historic mining, OHV use, roads, and wildlife browsing. Independently or in combination, these causal factors have resulted in expansion of conifers into riparian habitat, decreasing deep rooted riparian vegetation, lack of recruitment of woody riparian species such as aspen and willows, stream channel alteration, streambank impacts, sedimentation, and/or presence of noxious and invasive species within specified stream reaches.

Objectives

- Restore deciduous woody habitat types (aspen, willow) in riparian areas that have been invaded by coniferous trees (e.g., Gallagher Creek and Grasshopper Creek tributaries).
- Increase deep-rooted riparian vegetation (sedges, willows) where decreased composition was documented.
- Restore stream dimension, pattern, and profile to the natural range of variation where concerns were documented.
- Restore, maintain or enhance native vegetation and hydrology to springs, seeps and wet meadows where concerns were documented.
- Reduce sediment loads where uses on public lands are causing increased sediment (e.g., cattle loitering, road maintenance).
- Maintain or enhance habitat for cold water fisheries in occupied streams within the watershed.
- Maintain or improve conditions in riparian/wetland habitats that are in PFC.
- Prevent spread of noxious and invasive species into and within the watershed and reduce or eradicate existing infestations.

Resource Concern #1: Special Status Species

“Special Status Species” refers to both plants and animals and includes species listed as threatened or endangered (T&E) under the Endangered Species Act (ESA), species proposed for listing under the ESA, candidates for listing under the ESA, state listed species, and BLM Sensitive Species (USDI 2001).

No T&E species are known to occur in the BWW. Sage grouse and pygmy rabbits are sagebrush-obligate species that have been petitioned for federal listing in the past and are currently BLM sensitive species. Objectives for sagebrush habitat are listed above under Issue #1: Upland Health, Sagebrush Steppe Habitat and Associated Species.

Westslope cutthroat trout (WCT) are currently found in three drainages within the BWW. Extremely limited habitat and non-native salmonids place these populations at very high risk of extirpation. Objectives for riparian habitat and aquatic species are listed above under riparian health.

The upper reaches of the Big Hole River support the last self-sustaining population of strictly fluvial Arctic grayling in the lower 48 states. A petition to list the fluvial Arctic grayling species under the ESA is currently being reviewed, and they are a Montana Species of Special Concern. The current distribution of this species represents only 5% of historic range. Historically grayling were found throughout the river. Non native species, low water levels and degraded habitat are thought to be the primary factors influencing distribution. Recent population surveys have found historic low numbers in traditional upper river survey reaches for this population. Recent fishery surveys have not found grayling in the Big Hole reaches that lie within the BWW.

Objectives:

- Maintain or enhance habitat for sensitive plant species while providing ample opportunity for reproduction and seedling establishment.
- Maintain or enhance habitat for sensitive wildlife species while providing ample opportunity for reproduction and recruitment.
- Maintain or enhance habitat for WCT on Farlin and Taylor Creeks, and other suitable habitat within the watershed.
- Augment WCT populations by reintroducing WCT into suitable habitat within the watershed (e.g. BLM reaches of Taylor Creek)
- Protect the population of WCT in Farlin Creek from hybridization and competition from non native salmonids.
- Enhance native fluvial arctic grayling habitat on the Big Hole River.

Resource Concern #2: Recreational Opportunities and Public Access

There are approximately 230 miles of routes designated open to wheeled motorized vehicles in the BWW either yearlong or seasonally. In accordance with the Dillon RMP, these routes may be evaluated and adjusted to correct mapping errors, refine decisions, and further evaluate routes that may have been missed in the original inventory effort. Decisions related to designated routes would be evaluated and addressed through environmental assessment efforts such as this. Preserving, and when possible improving, public recreation access in this area is important to the local community for economic reasons as well as quality of life for the local residents.

Objectives

- Implement the Dillon RMP Travel Management Plan.
- Maintain motorized wheeled-vehicle access to those areas where it already exists, and improve access to public lands where opportunities are currently limited.
- Maintain or improve opportunities for big game hunting, fishing, wildlife viewing, horseback riding, and other backcountry recreation.
- Reduce unauthorized motor vehicle use, especially during the hunting season.

Resource Concern #3: Socioeconomics

Many ranches that hold grazing permits on BLM-administered lands have developed operations that tightly weave public land grazing preferences together with private land management. For these ranches, calving, breeding, haying, feeding, shipping, summer pasturing, and marketing schedules have evolved in tandem with the stocking rates and season of use on the public land allotments.

Three commercial outfitters are authorized under Special Recreation Use Permits to conduct big game hunting and/or summer horseback riding in all or part of this area. Total commercial use days associated with these permits is approximately 135 client days. Non-commercial hunting and fishing opportunities on BLM lands in the BWW provide an important economic contribution to the local economies. Businesses in Glen, Polaris, Melrose, Grant, Twin Bridges, and Dillon are likely to profit from recreation that occurs in the BWW.

Utilization of timber resources from public lands has historically resulted in an economic benefit to Beaverhead County. The potential for utilization of commercial forest products still exists.

Please refer to Table 56 on page 286 of the Proposed Dillon RMP and Final EIS, which shows employment and labor income response coefficients related to livestock grazing and recreation use for the area influenced by the Dillon Field Office.

Objective

- Continue to contribute to the local economy by providing an opportunity for sustainable uses on public land.

Critical Element: Areas of Critical Environmental Concern (ACECs)

Beaverhead Rock ACEC includes 120 acres of public land. Beaverhead Rock is one of a few physiographic features mentioned specifically in the journals of Lewis and Clark and is a prominent and important feature of the Lewis and Clark National Historic Trail. The applicable special management from the Dillon RMP states:

- Evaluate any other proposals against the need to protect this recognizable landmark along the Lewis and Clark National Historic Trail.

A portion of the Block Mountain ACEC (Hogback) occurs within the BWW. Block Mountain was designated as an ACEC because the area contains exceptional fold and thrust belt structure that is easily visible, making it a premier location to teach geologic field mapping. The applicable special management from the Dillon RMP states:

- Evaluate the density and placement of any facilities or land use authorizations proposed in the area and require measures to protect the integrity of the geologic features.

For more information on the Beaverhead Rock and Block Mountain ACECs, see pages 19 and 20 of the Dillon RMP.

Critical Element: Wilderness Characteristics

The BWW contains portions of the Henneberry Ridge and Farlin Creek Wilderness Study Areas (WSA) which are managed in accordance with the *Interim Management Policy (IMP) for Lands Under Wilderness Review* (BLM Handbook H-8550-1). The Henneberry Ridge WSA contains a total of 9,806 acres and the Farlin Creek WSA contains 1,139 acres identified to complement to the USFS's West Pioneer Mountains WSA.

The objectives for wilderness characteristics are:

- Maintain or improve the wilderness characteristics that were present at the time of the wilderness inventory (1979-80).
- Reduce occurrence and impacts of unauthorized motor vehicle use.

1.5 Decisions to be Made

The BLM is preparing this EA to allow the Authorized Officer to make a reasoned and informed decision regarding improving unhealthy riparian and upland conditions, enhancing biodiversity and revision or renewal of Term Grazing Permits (i.e. changing livestock management) with appropriate Terms and Conditions to initiate significant and measurable progress towards achieving the Land Health Standards and established goals and objectives within the BWW, while achieving BLM's multiple use mission.

The Dillon Field Manager will choose the alternative that best addresses resource concerns identified by the BLM and issues identified through scoping, and allows for multiple use.

The Dillon Field Manager must also determine if the selected alternative is a major Federal Action that significantly affects the quality of the human environment. If he determines that it is, then an EIS must be prepared before the BWW Management Plan can proceed.

Implementation of the Decisions resulting from this EA will begin in 2008. However, revised grazing rotations and/or range improvement projects associated with these plans may take up to five years and are subject to budget constraints. Due to the logistical constraints involved with vegetative treatments and complexity of the forestry products market and timber value, vegetative treatments may take up to ten years to complete. The new plans will be developed and implemented in consultation and coordination with the affected permittees, the agencies having lands or managing resources within the area and other interested parties. As with all similar BLM decisions, affected parties will have an opportunity to protest and/or appeal these decisions.

1.6 Applicable Legal and Regulatory Requirements

Title 43, Code of Federal Regulations, Part 4100

Taylor Grazing Act of June 30, 1934, as amended

Sikes Act of 1960, as amended (Habitat improvement on Public Land)

National Historic Preservation Act of 1966, as amended
Carlson-Foley Act of 1968 (Weed Control on Public Lands)
National Environmental Policy Act of 1969 (NEPA)
Endangered Species Act of 1973
Federal Noxious Weed Act of 1974, as amended in 1988, 1994
Federal Land Policy and Management Act of 1976 (FLPMA)
Fishery Conservation and Management Act of 1976
Clean Water Act of 1977
Public Rangelands Improvement Act of October 25, 1978
Fish and Wildlife Improvement Act of 1978
State of Montana Streamside Management Zone Law of July 1991
National Fire Plan of 2000

1.7 Coordination Requirements

According to 43 CFR subparts 4110, 4120, 4130 and 4160, coordination requirements include affected permittees or lessees, the interested public, the State having lands or responsible for managing resources within the area, other Federal or State resource management agencies, and the resource advisory council.

“Interested public” means an individual, group or organization that has submitted a written request to the Authorized Officer to be provided an opportunity to be involved in the decision making process for the management of livestock grazing on specific grazing allotments or has submitted written comments to the Authorized Officer regarding the management of livestock grazing on a specific allotment.

Following the Watershed Assessment Report and Determination of Standards, BLM met with other federal agencies, state agencies, permittees and the interested public while developing this EA. A full list of persons and agencies consulted is in Chapter 5.

2.0 Description of Alternatives

This chapter describes the alternative development process, alternatives considered but eliminated from further analysis, and alternatives that will be carried forward and fully analyzed. The alternatives that will be fully analyzed are the No Action (continuation of current management) Alternative and up to three action alternatives. Various combinations of tools, allowable use levels, grazing strategies and projects were discussed at length and carefully considered during scoping and during the formulation of the alternatives by the ID team.

2.1 Process Used to Formulate Alternatives

The development of management alternatives for the Watershed was guided by provisions of FLPMA and NEPA, as well as planning criteria listed in Chapter 1 and public input received during scoping. Other laws, as well as BLM planning regulations and policy, also directed alternative considerations and focused the alternatives on appropriate watershed-level decisions. Chapter 1 discusses the issues and resource concerns considered during the alternative development. The Affected Environment (Chapter 3) discusses resource concerns and other factors considered during alternative development.

Priority areas for commercial harvest treatments to improve forest health within the BWW are identified in Alternative B. Implementation of treatments will require coordination with private landowners to provide access and/or additional field work to determine unit boundaries and road locations. Additional NEPA documentation will be required to analyze site specific details of forest health treatments once they are determined.

2.2 Alternatives Considered but Eliminated from Further Analysis

Analysis of alternatives that would not make significant progress towards meeting the objectives of the proposed action or alternatives not consistent with the intent of current BLM legal and regulatory requirements or policy are not carried through. Alternatives proposing exclusive production or protection of one resource at the expense of other resources were not considered. FLPMA mandates the BLM to manage public lands for multiple use and sustained yield. This eliminates alternatives such as closing all public land to livestock grazing or oil and gas leasing, or managing only for wildlife values at the exclusion of other considerations. In addition, resource conditions do not warrant watershed area-wide prohibitions of any particular use. Each alternative considered in this EA allows for some level of support, protection, and/or use of all resources present in the planning area.

2.2.1 Eliminating livestock grazing from all BLM-administered lands in the watershed.

Eliminating livestock grazing from all BLM-administered lands in the watershed was considered, but eliminated from detailed study because it does not meet the purpose and need of this EA and it was previously analyzed in the Mountain Foothills EIS (March 1980). The recently updated and approved Dillon RMP identifies 90,076 acres of public land in the BWW as open to livestock grazing and 2,033 acres of land closed to livestock grazing, so a watershed wide “No Grazing” alternative would not be consistent with the Dillon RMP, would not meet the objectives for this planning effort, and is not consistent with the intent of other applicable acts, laws, and policies.

2.2.2 Restoring Gallagher Creek's natural connection with the Beaverhead River.

Restoring a natural connection between Gallagher Creek and the Beaverhead River was considered, but eliminated from detailed study because it is outside the control of the Authorized Officer. A Water Quality Restoration Plan with associated Total Maximum Daily Loads has not been prepared for the Beaverhead River Watershed and Gallagher Creek is not on the most current Montana DEQ 303d list of Water Quality Impaired Streams. Montana DEQ was advised of BLM's findings and our willingness to work with all parties to develop a solution.

2.3 Description of Alternatives

2.3.1 Features Common to all Alternatives, Including the No Action

Livestock Management:

- Term Grazing Permits will be renewed for those 31 allotments determined to be meeting Land Health Standards, had no identified site specific concerns related to current management, and needed no changes to facilitate improved management. These allotments include:

- | | |
|----------------------------|---------------------------|
| 1. Bachelor Mountain | 17. Krueger Creek |
| 2. Barretts | 18. Lovells Lk. Non-AMP |
| 3. Bell Ranch | 19. Lower Reservoir Cr. |
| 4. Big Hole Road | 20. Meine |
| 5. Brown's Canyon | 21. Meine Homestead |
| 6. Bryan | 22. Pipe Organ Rock |
| 7. Buzztail | 23. Rebich |
| 8. Conover AMP | 24. Rebich #2 |
| 9. Frying Pan Basin | 25. Red Spring |
| 10. Gallagher Mtn. AMP | 26. Selkirk |
| 11. Grasshopper | 27. Slinger |
| 12. Hayden | 28. Shale Creek |
| 13. Henneberry Ridge Cust. | 29. Small Horn Canyon |
| 14. Henneberry Ridge #2 | 30. Timber Butte Isolated |
| 15. Hildreth Individual | 31. Tucker Creek |
| 16. Hogback | |

Term permits for other allotments may be modified as analyzed in this document.

- Temporary electric fence, livestock supplement (e.g., salt, protein block) placement, riding, and herding are encouraged and, if warranted, may be required as a means of improving livestock distribution in all alternatives. When used, livestock supplement should be placed on ridges or terraces at least ¼ mile from the nearest livestock water source.
- The Eli Springs (S½ Section 3, N½ Section 10, T9S, R11W), Ney Ranch (SW¼ Section 2, NW¼ Section 11, T9S, R10W), and Small Horn Canyon (portions of Sections 23, 24, 25, and 26, T9S, R9W) unallotted parcels will continue to be managed as unavailable for livestock grazing and no term grazing permits or leases will be issued for these areas.
- Amend term grazing permits to state that depredation losses from wolves may occur.

- The BLM will coordinate with the Montana Department of Livestock and Beaverhead County Sheriff to determine the ownership and/or remove feral goats observed on Public Lands in the Barretts #30014 allotment.

Forest Management:

- Implement forest management activities in Shale Creek and Krueger Creek as analyzed in the Grasshopper Fuels Management EIS completed in June, 2005. Treatment in Shale Creek is anticipated to take place in 2008-2011; treatment in Krueger Creek is dependent on acquiring access across private property.

Recreation Management:

- Special Recreation Permits will continue to be considered on a case-by-case basis with the exception of big game hunting. Outfitted big game hunting will continue to be limited to existing permits and use levels will be based on historical use levels. Opportunities for big game hunting, wildlife viewing, horseback riding, and other backcountry recreation will be maintained. Dispersed recreational activities will continue to be managed consistent with other resource management objectives.
- Travel management will be in accordance with the Dillon RMP Travel Management Plan. Roads designated open to public motorized vehicle travel in the RMP will be signed as open, using a white arrow symbol on a flexible sign post (see Travel Management Map 2, Appendix A). Roads not identified as open to public use will be:
 - Left unsigned unless there is evidence of regular use.
 - Signed closed if there is evidence of regular use.
 - Obliterated to the extent possible (made unnoticeable), at least at the intersection with an open route, if signing is ineffective to discourage regular use.
 - Physically closed to prevent vehicle traffic only when continued use is causing significant unacceptable resource impacts or user conflicts.

Special Status Species:

- In habitats likely to support rare plants, field inspections will be conducted to search for special status plant species prior to authorizing surface disturbing activities. If rare plants are found in the course of the botanical survey, adverse impacts will be mitigated through project abandonment or redesign. Activities that disturb mineral soil (such as blading, trenching, ripping, etc.) won't be allowed within the boundaries of populations of special status plants.

Noxious Weeds:

- Management of noxious weeds would continue in cooperation with Beaverhead and Madison County, federal and state agencies, private landowners and other partners.
- All invasive species on the Montana state noxious weed list will be treated as resources allow.
- Work with Beaverhead and Madison County on the continued monitoring and possible collection and redistribution of biological controls found on noxious and invasive species, as applicable.
- Areas where adjacent landowner support and cooperation is the highest will be given the highest priority for treatment.

Cultural Resources:

- As required by Section 106 of the National Historic Preservation Act, Class III cultural resource inventory is required prior to the implementation of any proposed range or habitat improvement projects. Should significant cultural resources be identified, adverse impacts will be mitigated through project abandonment or redesign. Care will be taken to avoid and protect significant cultural resources and any standing structures during the course of any proposed prescribed fire treatments. In addition, personnel from the BLM should be notified of the presence and location of any cultural resources should they be encountered by any permittees during the course of operations on public lands.

Monitoring:

- Under all alternatives, resource monitoring will be conducted to measure progress toward meeting site-specific objectives. Monitoring will be done according to the monitoring plan shown as Appendix B.

2.3.2 Description of Alternative A - No Action (Continuation of Current Management)

No Action is defined here as *the continuation of current management*. This alternative will be analyzed to serve as baseline information for the Authorized Officer to make a reasoned and informed decision. Selection of the No Action Alternative may not be in conformance with the Dillon RMP.

Livestock Grazing Management:

Under Alternative A, livestock management would continue as per the Terms and Conditions contained in the current Term Grazing Permits. No new range improvement projects would be constructed. Existing livestock grazing management, as shown in Table 2.1, would continue on 51 allotments.

Table 2.1: Livestock Grazing Allocation and Management within the Beaverhead West Watershed.

ALLOTMENT NAME, NUMBER, AND CATEGORY ¹	LIVESTOCK NUMBER & KIND ²	SEASON OF USE	GRAZING SYSTEM ³	% PUBLIC LAND	BLM AUMS	BLM ACRES
Anderson Field, 30026, (M)	50 Y	10/01-11/19	RR	100	82	6194
	10 H	03/01-11/12		100	84	
	274 C	05/15-06/20		70	233	
	281 C	11/01-02/01		70	601	
Antelope Butte, 10118, (C)	8 C	05/16-01/12	CU	-	63	414
Argenta Flats, 10687, (C)	1 C	04/01-01/31	CU	-	10	1445
	11 C	10/01-06/30		-	99	
Bachelor Mountain, 30608, (C)	1 C	05/01-11/30	CU	-	8	85
Barretts, 30014, (M)	60 C	05/10-11/24	RR	65	255	1592
Beaverhead Rock, 20537, (C)	4 C	05/15-06/20	CU	-	5	124

ALLOTMENT NAME, NUMBER, AND CATEGORY ¹	LIVESTOCK NUMBER & KIND ²	SEASON OF USE	GRAZING SYSTEM ³	% PUBLIC LAND	BLM AUMS	BLM ACRES
Bell Ranch, 20197, (I)	67 C	06/01-10/31	SL	85	286	2328
Big Hole Road, 10135, (C)	43 C	10/12-04/01	DS	10	25	795
	115 C	05/01-06/15	SL	59	103	
B-Rock, 20599, (C)	2 C	06/01-09/20	CU	-	7	44
Browns Canyon, 20194, (C)	5 C	06/01-11/12	CU	-	27	123
Bryan, 10459, (I)	37 H	10/15-05/01	DS	50	121	911
Burns Mountain, 10160, (C)	320 C	05/01-05/31	CU	47	153	1158
Buzztail, 20161, (C)	60 C	10/1-12/31	DS	38	69	551
Conover AMP, 10117, (M)	720 S	7/15-11/10	DU	39	220	4268
	50 C	09/15-11/10		39	56	
Farlin Creek, 20191, (I)	14 C	05/17-10/11	RR	100	68	1906
	7 C	06/16-09/30		100	25	
Flynn Draw, 20538, (C)	8 C	06/01-11/30	CU	-	48	420
Frying Pan, 10131, (I)	170 C	05/01-11/30	SL	28	335	2785
Frying Pan Basin, 30691, (C)	3 C	05/01-11/30	CU	-	21	131
Gallagher, 20114, (M)	140 C	06/01-10/07	RR	90	534	5045
Gallagher Mtn AMP, 30013, (I)	1200 C	05/01-11/20	RR/DR	52	4185	14214
	15 H	12/01-05/15	DS	45	37	
Grasshopper, 30600, (M)	122 C	06/01-07/15	SL	29	52	602
Hayden, 10134, (C)	1 C	04/16-09/15	CU	-	5	33
Henneberry Rdg Cust, 20634, (C)	9 C	06/25-07/24	DU	-	9	103
Henneberry Ridge #2, 20171, (M)	20 Y	07/25-10/06	DU	98	48	1146
	45 C	07/25-10/06		98	107	
Hildreth Individual, 30103, (C)	64 S	11/01-02/28	DS	-	51	616
	12 C	11/01-02/28		-	47	
Hogback, 20486, (M)	11 C	03/01-02/28	CU	-	132	2393
	19 C	03/01-02/28	CU	-	228	
Holland-Carrol Iso., 30618, (C)	2 C	06/01-10/15	CU	-	9	468
Kennison Spring, 20182, (M)	124 C	10/01-02/28	RR	29	179	1173
Krueger Creek, 10139, (M)	2 C	06/01-09/30	SL	100	8	146
Lovells Lk Non-AMP, 30605, (C)	4 C	05/01-11/30	CU	-	28	229

Lower Reservoir Cr., 760, (C)	3 C	10/21-02/28	DS	-	13	231
	2 C	03/01-04/30		-	4	
Meine, 20544, (C)	1 C	06/01-11/30	CU	-	4	71
Meine Cow Camp, 20113, (M)	130 C	10/01-02/28	DS	7	45	333
Meine Homestead, 03146, (C)	1 C	06/01-11/30	CU	-	5	56
PHW Allotment, 30031, (I)	320 C	05/16-08/30	RR	96	1081	9067
	46 C	05/16-08/31		100	163	
Pipe Organ Rock, 10110, (M)	7 C	05/15-11/30	CU	-	46	1078
	25 S	05/15-11/30		-	33	
Polaris, 20186, (C)	3 C	05/01-11/30	CU	-	21	198
Rattlesnake, 10510, (C)	16 C	11/25-06/08	CU	-	103	1642
Rebich, 20174, (C)	10 C	05/09-11/14	CU	-	62	309
Rebich #2, 20184, (C)	5 C	06/01-09/30	CU	-	29	1069
Red Mine, 30034, (I)	150 C	06/01-09/30	RR	83	499	3705
Red Spring, 10120, (M)	234 C	11/16-12/15	DS	97	224	1705
Rocky Hills, 10148, (I)	1343 Y	05/01-06/20	RR	72	1621	15906
	986 Y	05/01-05/10		96	311	
Scudder Creek AMP, 30028, (I)	235 Y	05/21-06/20	SL	94	225	666
Selkirk, 20188, (C)	2 C	06/01-10/31	CU	-	10	471
	150 C	09/15-09/27	DU	-	64	
Shale Creek, 20718, (C)	1 C	05/15-10/14	CU	-	4	285
Slanger, 20712, (C)	8 C	06/01-08/30	CU	-	24	266
Small Horn Canyon, 20722, (M)	24 C	06/01-11/10	DR	70	90	504
Timber Butte Iso., 30632, (C)	13 C	10/01-02/02	DS	-	53	249
Tucker Creek, 20480, (C)	2 C	06/01-12/14	CU	-	13	41
West Big Hole Road, 10503, (C)	149 C	05/01-06/15	RR	6	14	782
	163 C	05/01-06/15		52	128	
BLM Totals					10657 C, 2287 Y, 304 S, 242 H	90076
¹ Allotment Category: I=improve, M=maintain, C=custodial						
² Livestock Kind: C=cattle, Y=yearlings, S=sheep, H=horses						
³ Grazing System: SL=season long, RR=rest rotation, DR=deferred rotation, DU=deferred use, DS=dormant season use, CU=custodial use						

Allotment category refers to BLM's level of management for a given grazing allotment. Allotments in the improve (I) category are managed more intensively and are monitored more

frequently. Allotments in the maintain (M) category are usually at a desired condition and are managed to maintain that condition. Custodial (C) category allotments are usually isolated parcels with few resource concerns, are managed in conjunction with the permittee's/lessee's normal livestock operation, and are monitored less frequently.

Under this alternative, all other currently authorized activities (recreation permits, mineral development, etc.) would continue as permitted. No forest health, fuels reduction, or other vegetation treatments would be completed under the No Action Alternative.

2.3.3 Features Common to all Action Alternatives

Riparian Vegetation Treatments

- Seeding with native upland or riparian species may be completed following juniper removal along riparian areas that do not have adequate understory of desirable native deciduous woody or herbaceous species.
- Treatments would extend a maximum of 100 feet from the stream centerline on each side of the stream and would include mechanical, chemical and/or prescribed fire treatment.
 - Mechanical or manual treatments would include chainsaws or other hand tools.
 - Chemical treatment may include Spike 20P or Spike 80DF under the drip line, Tordon 22K around the base of individual trees, or Velpar L applied to the foliage of smaller trees. Labels would be strictly adhered to and recommended distance from water would be followed. Spike 20P and Spike 80 DF would not be used where the ground water is less than five feet below the surface and Tordon 22K would not be used below the high water mark or where there is standing water. Velpar L can be used up to the water's edge.
- Post treatment management would include a minimum of two growing seasons of rest from livestock use to allow vegetative response from existing or seeded understory vegetation. Other tools, such as orienting and leaving the felled juniper, temporary fencing or hot tape may be used to allow the appropriate rest.
- Effectiveness monitoring would be established in each treatment unit (Appendix B). Monitoring would be used to determine if additional rest is necessary to meet objectives on specific units.

Prescribed Fire

- A burn plan would be prepared and approved prior to implementation of prescribed burning. Actual prescribed burn unit boundaries within the unit boundaries shown on Map 13 would be determined during preparation of the prescribed burn plan. If the need arises to adjust unit boundaries beyond those identified on Map 13, supplemental NEPA documentation would be completed.
- One season of rest from livestock grazing may be needed prior to prescribed burning to allow sufficient fine fuels (grasses) to ensure a successful burn. Generally, at least two growing seasons of rest will be required following burns to allow re-growth and re-establishment of vegetation in the treated areas.
- Units would be burned as fuel and weather conditions allow. Fire managers would coordinate the timing of prescribed fire treatments (seasonally) and the area treated per year to minimize public resource use conflicts.

- Fire Use opportunities and Appropriate Management Responses (AMR) in the Farlin Creek WSA would be evaluated in conjunction with the Forest Service.
- The objectives of prescribed fire treatments would be to kill at least 60% of conifers less than 30 feet in height, and kill less than 10% of conifers greater than 30 feet in height in all units where prescribed fire treatments will be implemented.

Structural Projects

Existing Water Developments

- Evaluate the existing spring developments that have not already been evaluated to determine ecological function, flow, and condition of infrastructure prior to moving forward with new proposals for water developments. Document all findings. Take the following actions:
 - Record flows, ecological function and infrastructure condition for spring developments which are meeting all objectives as described above.
 - Expand exclosures where they are found to be insufficient to protect spring sources and spring brooks.
 - Build new exclosures where flows are sufficient and infrastructure is in good condition, but where exclosures do not exist and ecological function has been negatively impacted by authorized uses.
 - Remove developments where they have deteriorated and have little or no potential for redevelopment. Fence exclosures needed to protect the spring source may be retained and/or maintained.

Proposed Projects

- All applicable State and Federal Permits would be obtained and all permit conditions would be followed.
- Springs and natural wet meadows would be protected when developing or redeveloping water for livestock. Spring sources and in most situations, associated riparian wetland habitat, would be fenced to exclude livestock use on all developed springs. Adequate water would be left at the spring source to maintain wetland hydrology, hydric soils, and hydric vegetation. Flow measurements would be gathered at springs proposed for new development. Springs that have inadequate flows to provide a reliable water source for authorized livestock while maintaining existing wetland/riparian habitat would not be developed.
- Wildlife escape ramps would be installed in all existing and new water developments.
- No new roads would be authorized as a result of water developments. Permit holders may be authorized to travel along pipeline routes to perform maintenance as defined in the term grazing permit.
- All old materials (pipeline, troughs, head boxes, etc) would be cleaned up and removed when springs are re-developed or maintained.
- Soil disturbance resulting from pipeline installation would be seeded with a native seed mix during the fall following construction.
- Existing BLM fences that impede wildlife movement would be modified or rebuilt to BLM specifications on a prioritized schedule. Modify old sheep fences and remove old fencing to facilitate wildlife passage in the Big Hole Road, Bell Ranch, Kennison Spring, Gallagher, and PHW allotments.

- All new fences and livestock enclosures would be constructed to specifications for wildlife, as per BLM Handbook H-1741-1, consisting of a smooth bottom wire, and wire spacing of 16", 22", 28" and 40" from the ground on 4-wire fences or wire spacing of 16", 26", and 38" from the ground on 3-wire fences.

Livestock Management

- AUMs reduced from current active use would be held in suspended non-use on the revised Term Grazing Permits.
- Annual utilization guidelines on cool-season bunch grasses would be 50% (to maintain plant health/vigor) OR when livestock use on sedges averages 4 inches along the greenline (to prevent excessive trailing along streams) on non-fisheries or non-native fisheries streams and 6 inches on WCT streams, whichever occurs first. These annual use guidelines would be applicable to all allotments included in the BWB as a tool to help determine moves between pastures and in conjunction with long term trend data to determine management effectiveness.
- With prior approval, more livestock may be grazed for a shorter period or fewer livestock for a longer period, within the authorized dates, so long as the active AUMs are not exceeded.

Fisheries

- Collect genetic samples from WCT in Farlin Creek to determine purity of the population.
- Dependent on purity of the WCT population, install a wooden pin and plank style fish barrier within the road culvert on Farlin Creek at Section 6, T6S, R12W.
- Dependent on purity of the WCT population, and in cooperation with Montana FWP and the Beaverhead-Deerlodge National Forest, conduct a non native eastern brook trout removal in Farlin Creek to eliminate the threat of extirpation to the WCT population by the expanding eastern brook trout population. The non native fish removal will be dependent on private landowner approval. Without approval this project is not likely to proceed.

Noxious and Invasive Species

- Weed management would be completed in coordination with the riparian vegetation treatments.
- The three leafy spurge infestations located within the Gallagher and Beaverhead Rock allotments, and an unallotted parcel on the Big Hole River, would be targeted for eradication due to their small size.

2.3.4 Description of Alternative B

This alternative would include adjustments to grazing management, the construction or modification of structural range improvement projects, and/or the implementation of vegetative treatments on allotments within the BWB. The 26 allotments and three unallotted tracts included in Alternative B are:

- | | |
|-------------------|--------------------|
| 1. Anderson Field | 4. Beaverhead Rock |
| 2. Antelope Butte | 5. Bell Ranch |
| 3. Argenta Flats | 6. Big Hole Road |

7. B-Rock
8. Burns Mountain
9. Conover AMP
10. Farlin Creek
11. Flynn Draw
12. Frying Pan
13. Gallagher
14. Holland-Carroll Isolated
15. Kennison Spring
16. Krueger Creek
17. Meine Cow Camp
18. PHW Allotment

19. Polaris
20. Rattlesnake
21. Rebich #2
22. Red Mine
23. Red Spring
24. Rocky Hills
25. Scudder Creek AMP
26. West Big Hole Road
27. Unallotted – Eli Springs
28. Unallotted – Ney Ranch
29. Unallotted – Other

The following five allotments had no concerns related to livestock grazing and no requests to change management: Bell Ranch, Big Hole Road, Conover AMP, Rebich #2, Red Spring, and Krueger Creek. These allotments would continue to be managed as described under Alternative A (Section 2.3.2), with the addition of the annual utilization guidelines defined above under Features Common to All Action Alternatives (Section 2.3.3). The proposed projects are shown on individual Allotment Maps in Appendix A.

Livestock Management: **Anderson Field #30026**

Management:

- Authorized use would be as follows:

Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
*250 Cattle	*5/1 – 7/1	70	385
**279 Cattle	**10/1 – 1/1	70	531
10 Horse	8/15 – 4/30	100	84

*The early grazing period may extend up to 7/15 as long as 385 authorized AUMs are not exceeded.

**The late grazing period may extend up to 2/28 as long as AUMs authorized for the period are not exceeded.

- Grazing management on the allotment would consist of a three-year, rest-rotation system for six pastures. Two pastures would be grazed during the Early period for up to 30 days with the entire herd. Maximum time grazed during the spring season would be 60 total days. During dry years when water availability in specific pastures is limited, the herd would be split in half and each Early period pasture would be grazed for a maximum of 60 days.
- Every time the Northeast/Middle Chandler Pastures are grazed during the Early period and the herd is split in half, use in the Middle Chandler pasture would not exceed 45 days of total use. Cattle from the Middle Chandler pasture would be moved to one of that year's Late grazing pastures for the remaining 15 days of the Early grazing period.
- The Beacon Hill pasture would be used during the Late grazing period (10/1 to 2/28) as needed.
- The grazing schedule would be as follows:

Year	Northwest/Lower Creek	Grasshopper / Henneberry	Northeast / Middle Chandler
1	Early (5/1 – 7/1)	REST	Late (10/1 – 2/28)
2	Late (10/1 – 2/28)	Early (5/1 - 7/1)	REST
3	REST	Late (10/1 – 2/28)	Early (5/1 – 7/1)

Projects (See Map #2):

- Consider piping overflow water from School Section Spring in Section 16, T8S, R10W to Section 20 or 21, T8S, R10W, in the Northwest pasture.
- Maintain School Section Spring and treat invasive weeds.

Antelope Butte #10118

Management:

- Active authorized use would remain at 63 AUMs, with 0 AUMs suspended.
- Authorized use would be for 16 cattle from 9/1 to 12/31 annually.

Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
16 Cattle	9/1 – 12/31	Custodial	64

- Cattle may be grazed between 4/15 and 6/15 for not more than one grazing season in a three-year period.

Argenta Flats #10687

Management:

- No change from existing livestock management.
- Horses may be grazed on this allotment during the authorized season, so long as the number of authorized AUMs is not exceeded. The stocking rate conversion for horses is 1.5 AUMs per horse.
- Pursue disposal of the 40-acre parcel in the NE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 17, T7S, R9W, via sale or land exchange.

Beaverhead Rock #20357

Management:

- Cancel the current livestock grazing permit and designate the 120-acre Beaverhead Rock ACEC as unallotted for livestock grazing.

Projects (See Map #4):

- Construct up to 0.75 miles of steel post, 4-wire fence along the north and east boundaries of the N $\frac{1}{2}$ NW $\frac{1}{4}$ Section 22, T5S, R7W, and provide a livestock lane to allow the adjacent landowners access across public land to water on their deeded property. The fence may be continuous, or a series of drift fences at strategic locations, whichever eliminates livestock impacts at the least expense.

Bell Ranch #20197

Management:

- No change from existing livestock management.

Projects (See Map #5):

- Enlarge the livestock enclosure at Albers Spring up to $\frac{1}{2}$ acre.
- Modify about 3.5 miles of perimeter fence to allow for wildlife passage.

Big Hole Road #10135

Management:

- No change from existing livestock management.

Projects (See Map #6):

- Construct a wildlife guzzler in Section 32, T6S, R9W.
- Remove about one mile of unnecessary fence.

B-Rock #20599

Management:

- Cancel the current livestock grazing permit and pursue disposal of the 40-acre parcel via sale, land exchange, or conveyance to Beaverhead County.

Burns Mountain #10160

Management:

- Active authorized use would be 176 AUMs, which would include the 23 AUMs that were previously suspended.
- Authorized use would be for 186 dry cows from 10/1 to 11/30 annually.

Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
186 Cattle	10/1 – 11/30	47	176

Farlin Creek #20191

Management:

- This allotment is co-managed with the USFS Farley-Dyer allotment as per the Agreement for Coordinated Management of Rangelands between the Forest Supervisor, Beaverhead-Deerlodge National Forest and the Field Managers of BLM's Dillon and Butte Field Offices, signed April 10, 2007. The USFS has lead management responsibility and grazing is conducted in accordance with the USFS Farley-Dyer Allotment Management Plan. This plan currently authorizes 195 cow/calf pairs to be grazed in a three-pasture rest-rotation grazing system. Beaverhead National Forest Plan upland and riparian utilization standards apply to all BLM-administered lands within the Farley-Dyer allotment. Under these standards, upland utilization is limited to 55%, while riparian utilization is limited to 45% on Scudder Creek and 35% on Farlin Creek, a WCT fishery.
- The BLM would work with Forest Service staff to coordinate use and mitigate resource concerns on BLM-administered lands through the FS annual operating strategy.
- Active authorized use would remain at 93 AUMs, with 0 AUMs suspended.
- BLM authorized use would remain as follows:

Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
7 Cattle	6/16 – 9/30	100	25
14 Cattle	5/17 – 10/11	100	68

Projects (See Map #7):

- Coordinate with the USFS to design and construct a spring-fed livestock water development on USFS-administered land in the S½SW¼ Section 10, T6S, R12W.
- Coordinate with permittee to develop a spring-fed livestock water development on deeded property in the S½NE¼ Section 33, T5S, R12W. BLM may provide engineering support or assist with materials to improve livestock distribution.

Flynn Draw #20535

Management:

- The proportion of public land within the allotment would be decreased from 100% to 49%, based on the proportion of available AUMs within the current allotment boundary.
- Active authorized use would remain at 52 AUMs, with 0 AUMs suspended.

- Authorized use would be as follows:

Year	Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
1 ¹	25 Cattle	6/15 – 10/10	49	48
2 ²	75 Cattle	9/1 – 10/10	49	48
3 ²	75 Cattle	9/1 – 10/10	49	48

¹ Not to exceed 45 days use with up to 65 head of livestock within the authorized season.

² Authorization allows up to 75 head of livestock during the authorized season.

- Up to 200 head of cattle can be grazed, NOT to exceed 15 days of use within the authorized season.

Frying Pan #10131

Management:

- Active authorized use would remain at 336 AUMs, with 87 AUMs suspended.
- Authorized use would be for 100 cattle from 3/15 to 5/31 annually in the North Gulch and South Gulch pastures and for 314 cattle from 9/1 to 11/30 annually in the North and Center pastures.

Pasture	Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
North Gulch & South Gulch	100 Cattle	3/15 – 5/31	28	72
North & Center	314 Cattle	9/1 – 11/30	28	263

Gallagher #20114

Management:

- Active authorized use would remain at 534 AUMs, with 0 AUMs suspended.
- Authorized use would be for 140 cattle from 6/1 to 10/7 annually.

Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
140 Cattle	6/1 – 10/7	90	534

- The grazing rotation would be as follows:

Year	Lower Bill Hill	Upper Bill Hill	North Gallagher	South Gallagher	Gravel Pit	Beacon Hill	Meadow
1	REST	8/10 – 9/10	7/6 – 8/9	6/1 – 7/5	9/11 – 9/17	9/18 – 9/30	10/1 – 10/7
2	6/1 – 7/5	REST	8/10 – 9/10	7/6 – 8/9	9/11 – 9/17	9/18 – 9/30	10/1 – 10/7
3	7/8 – 8/14	6/1 – 7/7	REST	8/15 – 9/14	REST	9/15 – 9/27	9/28 – 10/4
4	8/10 – 9/10	7/6 – 8/9	6/1 – 7/5	REST	9/11 – 9/17	9/18 – 9/30	10/1 – 10/7

- As determined by BLM staff, and with prior written approval, a temporary, non-renewable grazing authorization may be issued to graze between 10/7 and 12/15 for vegetation management on the north end of the Meadow pasture, which can only be grazed when the ground is frozen.

Projects (See Map #8):

- Install an additional water trough at Truckbox Spring to provide for greater water storage in the Upper Bill Hill pasture (SW¼SW¼ Section 6, T9S, R9W).
- Reconstruct the existing corrals in the Meadow pasture in the same location (Section 2, T9S, R10W) under a Range Improvement Permit to be no larger than 9100 square feet (130 x 70 feet).
- Redevelop Beacon Spring in SW¼SW¼ Section 2, T9S, R10W, and construct a livestock enclosure around the spring source and spring brook.
- Extend the fence between Beacon Hill pasture and Pipe Organ Rock allotment with about ¼-mile of electric fence, which would be removed after each grazing season.

- Mechanically cut/remove junipers from the hill above Upper Bill Hill Spring and enlarge the livestock enclosure around the spring source in E½ Section 6, T9S, R9W.
- Enlarge the livestock enclosure around the spring source at Lower Bill Hill Spring in W½NW¼ Section 6, T9S, R9W.

Holland-Carrol Isolated #30618

Management:

- No change from existing livestock management.

Projects (See Map #7):

- Remove approximately 0.5 miles of fence along the south and west boundaries of the SW¼SE¼ Section 18, T6S, R11W.

Kennison Spring #20182

Management:

- The proportion of public land within the allotment would be increased from 29% to 63%, based on the proportion of available AUMs within the current allotment boundary.
- Active authorized AUMs would be 179, with 0 AUMs suspended.
- Authorized use would be for 95 cattle from 9/1 to 11/30 annually.

Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
95 Cattle	9/1 – 11/30	63	179

- In cooperation with the USFS, the Kennison Spring allotment will continue to be rested every four years, in conjunction with the Argenta Springs pasture of the USFS Dutchman Mountain allotment, to provide for elk winter range. This rest is scheduled for 2009, 2013, 2017, and 2021.

Projects (See Map #5):

- Construct a wildlife guzzler in Section 14, T6S, R10W.

Meine Cow Camp #20113

Management:

- The proportion of public land within the allotment would be increased from 7% to 21%, based on the proportion of available AUMs within the current allotment boundary.
- Active authorized AUMs would be 45, with 0 AUMs suspended.
- Authorized use would be for 15 cattle and 10 horses, or any combination thereof, NOT to exceed the number of active AUMs from 9/1 to 3/31 annually. The stocking rate conversion for horses is 1.5 AUMs per horse.

Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
15 Cattle	9/1 – 3/31	21	22
10 Horses	9/1 – 3/31	21	22

Projects (See Map #5):

- The permittee would construct a water development that originates on deeded property and bury pipeline across State Lands and onto Public Land where a water trough would be located in the S½SE¼ Section 25, T5S, R10W.

PHW #30031*Management:*

- Active authorized use would be as follows:

Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
320 Cattle	5/16 – 8/30	96	1081

- Livestock management would consist of an 8-pasture rest rotation grazing system. Two to three pastures would be rested annually in the rotation while the time each pasture is grazed would vary each year. The proposed riparian pasture would be grazed once every three years for no more than 5 days.
- The grazing schedule would be as follows:

Year	South Seeding	North Seeding	3-Deer (A)	3-Deer (B)	North Cross	South Cross	Bachelor Mountain	Riparian
1	REST	5/16 – 5/26	5/27 – 6/15	6/16 – 7/4	7/5 – 7/31	8/1 – 8/30	REST	REST
2	5/16 – 5/26	REST	REST	8/15 – 8/30	7/19 – 8/14	6/19 – 7/18	5/27 – 6/18	REST
3	5/27 – 6/7	5/16 – 5/26	REST	REST	8/05 – 8/30	7/10 – 8/04	6/14 – 7/09	6/8 – 6/13
4	REST	5/16 – 5/26	5/27 – 6/14	6/15 – 7/02	REST	7/03 – 8/01	8/02 – 8/30	REST
5	5/16 – 5/26	REST	8/14 – 8/30	7/24 – 8/13	6/25 – 7/23	REST	5/27 – 6/24	REST
6	5/16 – 5/26	5/27 – 6/7	6/8 – 6/23	REST	6/24 – 7/24	7/25 – 8/25	REST	8/25 – 8/30
7	REST	5/16 – 5/26	REST	5/26 – 6/09	6/10 – 7/05	7/06 – 8/03	8/04 – 8/30	REST
8	5/16 – 5/26	REST	8/14 – 8/30	7/27 – 8/13	REST	6/26 – 7/26	5/27 – 6/25	REST
9	5/27 – 6/7	5/16 – 5/26	REST	8/13 – 8/30	7/13 – 8/12	REST	6/14 – 7/12	6/8 – 6/13
10	REST	5/16 – 5/26	5/27 – 6/14	6/15 – 7/2	7/3 – 8/1	8/2 – 8/30	REST	REST

Projects (See Map #9):

- Construct a fence (Section 2, T9S, R13W and Section 35, T8S, R13W) that would divide 3-Deer pasture into two sub-pastures. Construct a riparian pasture fence in the Bachelor Mountain Pasture to exclude grazing in reach 61 and a portion of reach 92.
- Add an additional trough in Sections 12 and 23, T9S, R13W to an existing stockwater pipeline system.

Polaris #20186*Management:*

- No change from existing livestock management.
- Horses may be grazed on this allotment during the authorized season, so long as the number of authorized AUMs is not exceeded. The stocking rate conversion for horses is 1.5 AUMs per horse.

Rattlesnake #10510

Management:

- Active authorized use would remain at 107 AUMs, with 0 AUMs suspended.
- Authorized use would be for 88 cattle from 4/25 to 5/31 annually.

Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
88 Cattle	4/25 – 5/31	Custodial	107

- During the authorized season, up to 232 cattle may be grazed for a maximum of 14 days (6 days in the North pasture, 8 days in the South pasture).

Red Mine #30034

Management:

- No change from existing livestock management.

Projects (See Map #10):

- Construct a livestock exclosure around the wetland area (56) in Pasture 1, not to exceed 5 acres.
- Install up to 4 water troughs to which the permittee can haul water in Pastures 3 and 4.
- Construct fence along BLM boundary on the west side of Taylor Creek (44) and provide up to two water gaps for the adjacent landowner.
- Construct up to 600 feet of drift fence on State of Montana and BLM-administered lands along the boundary of sections 9 & 16, T7S, R12W. The fence would extend westward from an existing fence, west of the dumpsters, and tie in to a natural barrier.

Red Spring #10120

Management:

- No change from existing livestock management.

Projects (See Map #2):

- Construct wildlife guzzlers in Sections 7 and 9, T8S, R10W.

Rocky Hills #10148

Management:

- Livestock management would consist of a 5-pasture grazing schedule that will begin on May 1 and end on June 20.
- Authorized use would be as follows:

Pasture	Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
Grasshopper, Madigan Gulch, Windmill West, Windmill East	1343 Cattle	5/1 – 6/20	72	1621
Brown's	986 Cattle	5/1 – 6/20	96	311

- The grazing schedule would be as follows:

Year	Grasshopper	Madigan Gulch	Windmill West	Windmill East	Brown's
1	5/1 – 5/25	5/26 – 6/20	5/1 – 6/20	REST	5/1 – 6/20
2	5/26 – 6/20	5/1 – 5/25	REST	5/1 – 6/20	5/1 – 6/20

- In the Windmill West and Windmill East pastures, grazing is permitted for up to 10 days while the Brown's Spring pastures is permitted to up to 6 days of grazing within the authorized season.

Projects (See Map #11):

- Construct a jack and rail livestock enclosure around the source of Rocky Point Spring (SE¼SE¼ Section 20, T8S, R11W).
- The existing Canyon Spring development #005249 would be abandoned and natural free-flowing water would be restored to the Canyon Spring drainage (NW¼SW¼ Section 21, T8S, R11W). The spring box, pipeline and stock tanks associated with the original development would be removed. The reclaimed spring source and approximately 1000 feet of associated spring brook plus an additional 500 feet of riparian habitat in a tributary to the Canyon Spring drainage would be enclosed with ½ - ¾ mile of 4-strand barbed wire fence.
- A new spring box would be located at the lower end of the spring brook (inside the livestock enclosure) and water would be diverted from the lowest feasible point along the spring brook to provide livestock troughs on upland benches below the canyon to replace the existing troughs within the canyon. Engineers would work with the Dillon Field Office Wilderness Specialist to determine a suitable location for placement of new troughs. Use of motorized vehicles will be limited to existing vehicle ways and washes, and if necessary, materials will be sling-loaded into the site to ensure compliance with the non-impairment standard.

Scudder Creek AMP #30028

Management:

- Active authorized use would be 221 AUMs, with 0 AUMs suspended.
- Authorized use would be for 230 yearling cattle from 6/5 to 6/20 and for 56 dry cows from 9/15 to 11/15.

Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
230 Yearlings	6/5 – 6/20	94	114
56 Cattle	9/15 – 11/15	94	107

- Spring use would alternate between the East and West pastures, with the East pasture used in the spring of even-numbered years. Grazing in the spring-use pasture will not exceed 15 days.

Projects (See Map #7):

- Maintain the Marchesseau Reseeding #470422 project by reseeding up to 600 acres with a mix of introduced grasses and forbs. The allotment would be rested for a minimum of 2 years to allow for establishment.

West Big Hole Road #10503

Management:

- Active authorized use would remain at 142 AUMs, with 0 AUMs suspended.
- Authorized use would be for 90 cattle from 3/15 to 5/31 in the East pasture and for 96 cattle from 3/15 to 5/31 in the West pasture.

Pasture	Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
East	90 Cattle	3/15 – 5/31	6	14
West	96 Cattle	3/15 – 5/31	52	128

- The East pasture would continue to be grazed in even-numbered years and the West pasture grazed in odd-numbered years.

Projects (See Map #6):

- Construct a wildlife guzzler in Section 4, T7S, R9W.

Unallotted – Ney Ranch

Management:

- The Ney Ranch parcel will remain unallotted for livestock grazing.

Projects (See Map #8):

- A temporary, non-renewable (TNR) grazing authorization may be issued as a vegetation treatment, if deemed necessary by the authorized officer, to achieve the resource objectives of reducing fuel loading and limiting willow expansion into the wetland. This TNR grazing authorization would likely be a high-intensity, short-duration treatment, using a large number of livestock for a short period of time to reduce forage selectivity, during the late fall or early winter when the soils are frozen. If feasible, prescribed fire or mechanical treatments may also be employed to achieve management objectives.

Unallotted – Eli Springs

Management:

- Applications for trailing permits would be considered on a case by case basis. Any trailing through the area would be in a north - south direction and livestock would be kept within ¼ mile of the west boundary.

Projects (See Map #11):

- Replace the 3 barbed wire gates across the designated routes (open roads) entering the Eli Springs area with 16' metal gates.
- Maintain and/or reconstruct about 4 miles of 4-strand barbed wire fence around the section, as necessary.

Conifer Treatments:

Alternative B would implement mechanical treatments (commercial and/or non-commercial) and prescribed fire treatments in 7 units within the BWW to improve forest health and reduce conifer encroachment into sagebrush/grasslands, forest meadows/openings, aspen, and riparian areas. Any prescribed burn plans that would affect lands within WSAs would be prepared in consultation with the Field Office Wilderness Specialist to ensure that any impacts associated with mechanical pre-treatment or prescribed fire control activities are designed to minimize evidence of man's activities in the area.

In areas of upland conifer encroachment, a combination of prescribed fire and/or non-commercial mechanical methods would be used with the goal of killing/removing 60% or more of conifers less than 30 feet tall that are encroaching into sagebrush/grasslands or forest openings. Where conifers are encroaching into sagebrush/grasslands, an emphasis would be placed on maintaining 50% of the mature sagebrush cover on a drainage basis.

Up to 1385 acres in the Small Horn Canyon area and up to 290 acres in the Black Mountain area would be proposed for commercial harvest treatment under Alternative B. Specific unit boundaries, road locations, and silvicultural prescriptions within the boundaries shown on Map 12 would be determined and analyzed subsequent NEPA document(s). If market conditions permit, biomass material may be removed from within commercial harvest units. Sufficient

residual biomass material would be left on site to maintain nutrient recycling and desirable microsite conditions. Residual slash may be burned within 3 years following the completion of harvest operations.

The commercial harvest treatment units in Small Horn Canyon are composed primarily of Douglas-fir with intermixed lodgepole pine, subalpine fir, Engelmann spruce, and scattered patches of aspen. Silvicultural prescriptions would be further refined in subsequent analysis, but would target harvest and removal of dead/dying trees, thinning of high density conifer stands, and harvest of conifers in and around aspen stands. Harvest treatments would aim to restore the structural diversity that occurred within the historical fire regimes. Treatments would include selective thinning and/or small patch cuts (up to five acres). At the minimum, an average of two to five existing snags or green recruitment snags would be left per acre in all commercial harvest units. Retention patches of uncut timber would be scattered throughout harvest units to provide wildlife screening cover and reduce sighting distances. Tractor and/or cable yarding would be the primary systems used, however helicopter yarding would be considered in areas with site-specific concerns.

The commercial harvest treatment units in the Black Mountain area are composed primarily of lodgepole pine, with some scattered Douglas-fir. Treatment in this area would be a combination of salvage and sanitation harvest targeting areas of insect and/or disease activity. Treatments would include patch clearcutting, clearcutting with reserve trees and/or thinning in mixed lodgepole pine conifer stands. Areas previously harvested in the Black Mountain timber sale of the early 90s would not be treated and skid trail disturbance would be avoided. Tractor yarding would be the primary system used.

Table 2.2 outlines the proposed units, objectives, treatment types and the affected allotments under Alternative B. Unit locations and boundaries are shown on Maps 12 and 13 in Appendix A.

Table 2.2: Proposed Conifer Treatments in Alternative B

UNIT	ALLOTMENT	ACRES	OBJECTIVE(S)*	TREATMENT TYPE(S)
BlackMtn1	Holland-Carrol Isolated	290	↑ forest health, salvage bug-killed timber	Commercial harvest Prescribed fire
Holland-Carrol	Holland-Carrol Isolated	40	Maintain sagebrush/grassland park characteristics	Slash, Pile, Prescribed Fire
Krueger	Krueger Creek	20	Remove conifer understory, ↓fuel loading	Slash, underburn prescribed fire
RH1	Rocky Hills	394	↓ conifer encroachment into sagebrush/grasslands	Slash, Prescribed Fire
RH2	Rocky Hills	685	↓ conifer encroachment into sagebrush/grasslands	Slash, Prescribed Fire
SmallHorn1	Conover AMP Rebich #2 Unallotted	1100	↑ forest health	Commercial harvest Prescribed fire
SmallHorn2	Conover AMP Rebich #2	285	↑ forest health	Commercial harvest Prescribed fire

* Abbreviations: ↑=increase ↓=decrease

Noxious and Invasive Species:

Approximately 500 acres of spotted knapweed in Sections 22 and 23, T8S, R11W, near Grasshopper Creek, would be aerially treated and up to 200 acres of cheatgrass would be treated within the Gallagher and Gallagher Mountain AMP allotments. These areas would then be reseeded with native grasses if it were determined to be necessary.

Travel Management:

Approximately 1 mile of road along the north side of the Reservoir Creek AMP allotment, not designated open to motorized vehicle use in the RMP, would be designated as open from April 1 to April 30 to allow people interested in viewing sage grouse an opportunity to view them on their lek.

2.3.5 Description of Alternative C

This alternative would include adjustments to grazing management, the construction or modification of structural range improvement projects, and/or the implementation of vegetative treatments on allotments within the BWV. The 14 allotments and one unallotted tract included in Alternative C are:

- | | |
|-----------------------------|------------------------------|
| 1. Anderson Field | 9. Meine Cow Camp |
| 2. Antelope Butte | 10. PHW Allotment |
| 3. Argenta Flats | 11. Rattlesnake |
| 4. Burns Mountain | 12. Red Mine |
| 5. Flynn Draw | 13. Rocky Hills |
| 6. Frying Pan | 14. Scudder Creek AMP |
| 7. Gallagher | 15. Unallotted – Eli Springs |
| 8. Holland-Carroll Isolated | |

Livestock Management:

Anderson Field #30026

Management:

- Authorized use would be as follows:

Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
274 Cattle	5/15 – 6/20	70	233
*308 Cattle	*10/1 – 1/5	70	683
10 Horse	8/15 – 4/30	100	84

*The late grazing period may extend up to 2/28 as long as AUMs authorized for the period are not exceeded.

- Grazing management on the allotment would consist of a three-year, rest-rotation system for six pastures. During the spring period, the herd would be split in half and each pasture would be grazed during the early period for up to 35 days.
- Horses are authorized on an annual basis for 84 AUMs from March 1 to February 28.
- The grazing schedule would be as follows:

Year	Northwest/Lower Creek	Grasshopper / Henneberry	Northeast / Middle Chandler
1	5/15 – 6/20	REST	11/1 – 2/1
2	11/1 – 2/1	5/15 – 6/20	REST
3	REST	11/1 – 2/1	5/15 – 6/20

Projects (See Map #2):

- Same as Alternative B.

Antelope Butte #10118

Management:

- Same as Alternative B.

Projects (See Map #6):

- Construct up to 1.5 miles of steel post, 4-wire fence along the north and east boundaries of Section 3, T7S, R9W and in the S½SE¼ Section 34, T6S, R9W. The fence may be continuous, or a series of drift fences at strategic locations, whichever controls livestock from accessing public lands at the least expense.

Argenta Flats #10687

Management:

- Active authorized use would remain at 106 AUMs, with 0 AUMs suspended.
- Authorized use would be for 16 cattle from 10/1 to 3/31 and for 1 cattle from 4/1 to 1/31, annually.

Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
16	10/1 – 3/31	Custodial	96
1	4/1 – 1/31	Custodial	10

- Pursue disposal of the 40-acre parcel in NE¼SW¼ Section 17, T7S, R9W, via sale or land exchange.

Burns Mountain #10160

Management:

- Active authorized use would remain at 153 AUMs, with 23 AUMs suspended.
- Authorized use would be for 162 dry cows from 10/1 to 11/30 annually.

Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
162 Cattle	10/1 – 11/30	47	153

Flynn Draw #20535

Management:

- The proportion of public land within the allotment would be decreased from 100% to 49%, based on the proportion of available AUMs within the current allotment boundary.
- Active authorized use would remain at 54 AUMs, with 0 AUMs suspended.
- Authorized use would be for 75 cattle from 9/1 to 10/10 annually.

Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
75 Cattle	9/1 – 10/10	49	48

- Up to 200 head of livestock can be grazed, NOT to exceed 15 days of use within the authorized season.

Frying Pan #10131

Management:

- Same as Alternative B, but in addition:
- Cattle may be grazed in the North and Center pastures between 3/15 and 5/31 for not more than one grazing season in a three-year period.

Projects (See Map #5):

- Construct a wildlife guzzler in Section 19, T6S, R9W.

Gallagher #20114

Management:

- Active authorized use would be 476 AUMs, with 58 AUMs suspended.
- Authorized use would be for 140 cattle from 6/15 to 10/7 annually.

Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
140 Cattle	6/15 – 10/7	90	476

- The grazing rotation would be as follows:

Year	Lower Bill Hill	Upper Bill Hill	North Gallagher	South Gallagher	Gravel Pit	Beacon Hill	Meadow
1	REST	8/16 – 9/10	7/16 – 8/15	6/15 – 7/15	9/11 – 9/17	9/18 – 9/30	10/1 – 10/7
2	6/15 – 7/15	REST	8/16 – 9/10	7/16 – 8/15	9/11 – 9/17	9/18 – 9/30	10/1 – 10/7
3	7/16 – 8/20	6/15 – 7/15	REST	8/21 – 9/14	REST	9/15 – 9/27	9/28 – 10/4
4	8/16 – 9/10	7/16 – 8/15	6/15 – 7/15	REST	9/11 – 9/17	9/18 – 9/30	10/1 – 10/7

- With prior written approval, a temporary, non-renewable grazing authorization may be issued to graze between 10/7 and 12/15 for vegetation management on the north end of the Meadow pasture, which can only be grazed when the ground is frozen.

Projects (See Map #8):

- Same as Alternative B.

Holland-Carrol Isolated #30618

Management:

- No change from existing livestock management.

Projects (See Map #7):

- Reconstruct up to 0.75 miles of steel post, 4-wire fence along the south and west boundaries of the SW¹/₄SE¹/₄ Section 18, Township 6 South, Range 11 West. Jack and rail fencing would be used across wetland areas.

Meine Cow Camp #20113

Management:

- The proportion of public land within the allotment would be increased from 7% to 21%, based on the proportion of available AUMs within the current allotment boundary.
- Active authorized use would be 45 AUMs, with 12 AUMs suspended.
- Authorized use would be for 20 cattle and 21 horses, or any combination thereof, NOT to exceed the number of active AUMs from 10/1 to 2/28 annually.

Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
20 Cattle	10/1 – 2/28	21	21
21 Horses	10/1 – 2/28	21	22

- The stocking rate conversion for horses is 1.5 AUMs per horse.

Projects (See Map #5):

- Same as Alternative B.

PHW #30031

Management:

- Active authorized use would remain the same as Alternative B.
- The grazing schedule would be as follows:

Year	South Seeding	North Seeding	3-Deer (A)	3-Deer (B)	North Cross	South Cross	Bachelor Mountain	Riparian
1	REST	5/16 – 5/26	5/27 – 6/13	6/14 – 6/29	6/30 – 7/29	7/30 – 8/30	REST	REST
2	5/16 – 5/26	REST	8/14- 8/30	7/27 – 8/13	6/27 – 7/26	REST	5/27 – 6/26	REST
3	5/24 – 6/1	5/16 – 5/23	REST	REST	8/04 – 8/30	7/04 – 8/03	6/08 – 7/03	6/2 – 6/07
4	REST	5/16 – 5/23	5/24 – 6/08	6/09 – 6/23	REST	6/24 – 7/19	REST	REST
5	5/16 – 5/23	REST	8/16 – 8/30	7/24 – 8/01	6/24 – 7/23	REST	5/24 – 6/23	REST
6	5/16 – 5/23	5/24 – 6/1	REST	REST	6/2 – 6/28	6/29 – 7/29	7/30 -8/30	8/10 – 8/15
7	REST	5/16 – 5/23	6/24 - 7/08	7/09 – 7/14	REST	7/17 – 7/23	7/24 – 8/15	REST
8	5/16 – 5/23	REST	8/12 – 8/30	7/26 – 8/11	6/25 – 7/25	5/24 -6/24	REST	REST
9	5/27 – 6/4	5/16 – 5/26	REST	8/14 - 8/30	7/13- 8/13	REST	6/11 – 7/12	6/5 – 6/10
10	5/16 – 5/26	5/27 – 6/4	6/5 – 6/21	REST	REST	7/23 – 8/30	6/22 – 7/22	REST

Projects (See Map #9):

- Same as Alternative B.

Rattlesnake #10510

Management:

- Active authorized use would be 53 AUMs, with 54 AUMs suspended.
- Authorized use would be for 232 cattle for 7 days between 4/25 and 5/31 annually.

Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
232 Cattle	4/25 – 5/31	Custodial	53

- The North pasture would be grazed in even years and the South pasture grazed in odd years.
- The grazing rotation would be as follows:

Year	North Pasture	South Pasture
1	Spring	REST
2	REST	Spring

Red Mine #30034

Management:

- Same as Alternative B

Projects (See Map #10):

- Same as Alternative B, except:
- If feasible, construct up to 1 mile of pipeline, install up to 4 troughs, and pump water from the springs above Taylor Creek Road to provide off-site water to either Pasture 2 or 3, or both, instead of installing troughs and hauling water.

Rocky Hills #10148

Management:

- Livestock management would consist of a 5-pasture rotation system that would begin on May 1 and end on June 10.
- Active authorized use would be 1303, with 318 AUMs suspended, and 311 AUMs, with 0 AUMs suspended.
- Authorized use would be as follows:

Pasture	Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
Grasshopper, Madigan Gulch, Windmill West, Windmill East	1343 Cattle	5/1 – 6/10	72	1303
Brown's	986 Cattle	5/1 – 6/10	96	311

- The grazing schedule would be as follows:

Year	Grasshopper	Madigan Gulch	Windmill West	Windmill East	Brown's
1	5/1 – 6/10	REST	5/1 – 6/20	REST	5/1 – 6/20
2	REST	5/1 – 6/10	REST	5/1 – 6/20	REST

- In the Windmill West and Windmill East pastures, grazing is permitted for up to 10 days while the Brown's Spring pasture is permitted to up to 6 days of grazing within the authorized season.

Projects (See Map #11):

- Construct a livestock exclosure around the lower reach of Cedar Creek (96).
- Rocky Point Spring #470310 would be abandoned. The spring box and the existing stock tank associated with the spring development would be removed. The reclaimed spring source and the associated riparian and wet meadow habitat would be protected with jack & rail fence as described under Alternative B.
- The existing Canyon Spring development #005249 would be abandoned and natural free-flowing water would be restored to the Canyon Spring drainage. The reclaimed spring source and approximately 1500 feet of riparian habitat in the Canyon Spring drainage would be enclosed with ½ - ¾ mile of 4-strand barbed wire fence as described under Alternative B.

Scudder Creek AMP #30028

Management:

- Active authorized use would remain at 221 AUMs, with 0 AUMs suspended.
- Authorized use would be for 230 yearling cattle from 6/5 to 6/20 and for 115 dry cows from 9/15 to 10/15.

Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
230 Yearlings	6/5 – 6/20	94	114
112 Cattle	9/15 – 10/15	94	107

- Grazing in the spring pasture will not exceed 15 days.
- The grazing rotation would be as follows:

Year	East Pasture	West Pasture
1	Spring	Fall
2	Fall	REST
3	REST	Spring

Projects (See Map #7):

- Reclaim the Marchesseau Reseeding #470422 project by reseeding up to 600 acres with a mix of native grasses and forbs. The allotment would be rested for a minimum of 2 years to allow for establishment.

Unallotted – Eli Springs

Management:

- Same as in Alternative B.

Projects (See Map #11):

- Replace the 3 barbed wire gates across the designated routes (open roads) entering the Eli Springs area with 12' cattle guards. Construct wire gates at the northwest cattle guard location and 1/3-mile west of the south cattle guard location. There would not be a gate associated with the east cattle guard.
- Reconstruct the 4 miles of 4-strand barbed wire fence around the section or maintain as necessary.

Conifer Treatments

Under Alternative C, all of the upland conifer treatments proposed in Alternative B, excluding the commercial harvest in SmallHorn1, SmallHorn2, and BlackMtn1, and the prescribed fire in Krueger, would be carried forward. An additional conifer treatment in the Anderson Field allotments is also proposed under Alternative C. Treatment descriptions and objectives would be the same as described under Alternative B. Table 2.3 outlines the proposed units, objectives, treatment types and the affected allotments under Alternative C. Unit locations and boundaries are shown on Maps 12 and 13 in Appendix A.

In the Gallagher Creek allotment, BLM would treat 1.6 miles (40 acres) of riparian habitat to reduce/remove Rocky Mountain juniper (juniper) and to restore deciduous woody and herbaceous species on the lower reaches (25 and 26) of Gallagher Creek. The goal would be to treat (kill or remove) all juniper trees within the riparian zone. Depending on the treatment type used, a range of 80 – 95% control would be considered successful.

Table 2.3: Proposed Conifer Treatments in Alternative C

UNIT	ALLOTMENT	ACRES	OBJECTIVE(S)*	TREATMENT TYPE(S)
Anderson Field	Anderson Field	60	↓ conifer encroachment into sagebrush/grasslands	Mechanical, herbicide, prescribed fire
Gallagher	Gallagher	40	↓ conifer encroachment into riparian area	Mechanical, herbicide, prescribed fire
Holland-Carrol	Holland-Carrol Isolated	40	Maintain sagebrush/grassland park characteristics	Slash, pile, prescribed fire
RH1	Rocky Hills	394	↓ conifer encroachment into sagebrush/grasslands	Slash, prescribed fire
RH2	Rocky Hills	685	↓ conifer encroachment into sagebrush/grasslands	Slash, prescribed fire

* Abbreviations: ↑=increase ↓=decrease

2.3.6 Description of Alternative D

This alternative would include changes in grazing management, the construction or modification of structural range improvement projects, and/or the implementation of vegetative treatments on the Gallagher and Scudder Creek AMP allotments, located within the BWW.

Gallagher #20114

Management:

- Active authorized use would be 400 AUMs, with 134 AUMs suspended.
- Authorized use would be for 105 cattle from 6/1 to 10/7 annually.

Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
105 Cattle	6/1 – 10/7	90	401

- The grazing rotation would be as follows:

Year	Lower Bill Hill	Upper Bill Hill	North Gallagher	South Gallagher	Gravel Pit	Beacon Hill	Meadow
1	REST	8/10 – 9/10	7/6 – 8/5	6/1 – 7/5	9/11 – 9/17	9/18 – 9/30	10/1 – 10/7
2	6/1 – 7/5	REST	8/10 – 9/10	7/6 – 8/5	9/11 – 9/17	9/18 – 9/30	10/1 – 10/7
3	7/6 – 8/9	6/1 – 7/5	REST	8/10 – 9/15	REST	9/15 – 9/27	9/28 – 10/4
4	8/6 – 9/10	7/6 – 8/5	6/1 – 7/5	REST	9/11 – 9/17	9/18 – 9/30	10/1 – 10/7

- With prior written approval, a temporary, non-renewable grazing authorization may be issued to graze between 10/7 and 12/15 for vegetation management on the north end of the Meadow pasture, which can only be grazed when the ground is frozen.

Projects (See Map #8):

- Same as Alternative B.

Scudder Creek AMP #30028

Management:

- Active authorized use would be 221 AUMs, with 0 AUMs suspended.
- Authorized use would be for 115 cattle from 9/15 to 11/15.

Livestock Number & Kind	Begin & End Dates	% Public Land	Active AUMs
115 Cattle	9/15 – 11/15	94	221

- Each pasture would be grazed for about half of the grazing period and would be dependent on the number of cattle being grazed.

2.4 Summary Comparison of Alternative Actions

Table 2.4: Comparison of Conifer Treatments by Alternative

Conifer Treatment Method	Acres		
	Alternative A	Alternative B	Alternative C
Non-commercial mechanical and/or prescribed fire	0	1139	1179
Commercial harvest and prescribed fire	0	1675*	0
Non-commercial mechanical and/or chemical treatment (Riparian)	0	0	40
TOTAL	0	2814	1219

*Would require additional site-specific NEPA documentation

Table 2.5: Comparison of Livestock Management, Projects & Vegetation Treatments Summarized by Grazing Allotment

Anderson Field # 30026	Alternative A	Alternative B	Alternative C	Alternative D
Livestock Number & Kind	274 C 50 Y 281 C 10 H	250 C 279 C 10 H	274 C 308 C 10 H	No Alternative D
Grazing Period	5/15 - 6/20 10/1 - 11/19 11/1 - 2/1 3/1 - 2/28	5/1 - 7/15 10/1 - 2/28 8/15 - 4/30	5/15 - 6/20 10/1 - 2/28 8/15 - 4/30	
Active BLM AUMs	233 82 601 84	350 566 84	233 683 84	
Grazing Management	3-Year Rest Rotation (Growing season, Dormant, Rest)	3-Year Rest Rotation (Growing season, Dormant, Rest) 45 day max grazing period per pasture in spring	3-Year Rest Rotation (Growing season, Dormant, Rest) 35 day max grazing period per pasture in spring	
Projects	None	Overflow water from spring, piped to new trough, maintain School Section Spring		
Vegetative Treatments	None	Treat invasive weeds at School Section Spring	60-acre prescribed burn to reduce Juniper	
Antelope Butte # 10118	Alternative A	Alternative B	Alternative C	Alternative D
Livestock Number & Kind	8 C	16 C		No Alternative D
Grazing Period	5/16 – 1/12	9/1 – 12/31		
Active BLM AUMs	64	64		
Grazing Management	Custodial	Deferred Use, may use 4/15-6/15, 1 year in 3		
Projects	None	None	Construct 1.5 miles of fence	
Argenta Flats # 10687	Alternative A	Alternative B	Alternative C	Alternative D
Livestock Number & Kind	11 C 1 C		16 C 1 C	No Alternative D
Grazing Period	10/1 – 6/30 4/1 – 1/31		10/1 – 3/31 4/1 – 1/31	
Active BLM AUMs	96 10		96 10	
Grazing Management	Custodial	Custodial, horses authorized, season long use is on small isolated parcels	Dormant season use, horses not authorized, season long use is on small isolated parcels	

Beaverhead Rock # 20357	Alternative A	Alternative B	Alternative C	Alternative D
Livestock Number & Kind	4 C	None	No Alternative C	No Alternative D
Grazing Period	5/15 – 6/20	None		
Active BLM AUMs	5	None		
Grazing Management	Custodial	Unallotted		
Projects	None	Up to 0.75 miles of drift or continuous fence w/ stock lane		
Bell Ranch # 20197	Alternative A	Alternative B	Alternative C	Alternative D
Projects	None	Enlarge enclosure at Albers Spring, modify perimeter fence	No Alternative C	No Alternative D
Big Hole Road #10135	Alternative A	Alternative B	Alternative C	Alternative D
Projects	None	Construct a wildlife guzzler, remove unnecessary fence.	No Alternative C	No Alternative D
B-Rock # 20599	Alternative A	Alternative B	Alternative C	Alternative D
Livestock Number & Kind	2 C	None	No Alternative C	No Alternative D
Grazing Period	6/1 – 9/20	None		
Active BLM AUMs	7	None		
Grazing Management	Custodial	Unallotted		
Burns Mountain # 10160	Alternative A	Alternative B	Alternative C	Alternative D
Livestock Number & Kind	320 C	186 C	162 C	No Alternative D
Grazing Period	5/1 – 5/31	10/1 – 11/30	10/1 – 11/30	
Active BLM AUMs	153	176	153	
Grazing Management	Custodial	Deferred use	Deferred use	
Conover AMP # 10117	Alternative A	Alternative B	Alternative C	Alternative D
Vegetative Treatments	None	Up to 163 acres of commercial timber harvest	No Alternative C	No Alternative D
Farlin Creek # 20191	Alternative A	Alternative B	Alternative C	Alternative D
Livestock Number & Kind	14 C 7 C		No Alternative C	No Alternative D
Grazing Period	5/17 – 10/11 6/16 – 9/30			
Active BLM AUMs	68 25			
Grazing Management	3-Pasture Rest Rotation w/ USFS			
Projects	None	Coordinate to construct spring developments on deeded & USFS		
Vegetation Treatments	None	Fire Use Plan		

Flynn Draw # 20535	Alternative A	Alternative B	Alternative C	Alternative D
Livestock Number & Kind	8 C	25 C 75 C	75 C	No Alternative D
Grazing Period	6/1 – 11/30	6/15 – 10/10 9/1 – 10/10	9/1 – 10/10	
Active BLM AUMs	48	48	48	
Grazing Management	Custodial	Deferred use; may be used up to 45 days 1 spring in 3	Deferred use	
Frying Pan # 10113	Alternative A	Alternative B	Alternative C	Alternative D
Livestock Number & Kind	170 C	100 C 314 C		No Alternative D
Grazing Period	5/1 – 11/30	3/15 – 5/31 9/1 – 11/30		
Active BLM AUMs	336	336		
Grazing Management	Season long	South Gulch & North Gulch pastures used in spring; Center & North pastures used in fall	Same as Alternative B plus, may use Center & North pastures 3/15-5/31, 1 year in 3	
Projects	None		Construct a wildlife guzzler.	
Gallagher # 20114	Alternative A	Alternative B	Alternative C	Alternative D
Livestock Number & Kind	140 C	140 C	140 C	105 C
Grazing Period	6/1 – 10/7	6/1 – 10/7	6/15 – 10/7	6/1 – 10/7
Active BLM AUMs	534	534	476	400
Grazing Management	5-pasture rest rotation (30-37 days, rested 1 year in 4); deferred use	5-pasture rest rotation (30-37 days, rested 1 year in 4); deferred use	5-pasture rest rotation (24-31 days, rested 1 year in 4); deferred use	5-pasture rest rotation (31-37 days, rested 1 year in 4); deferred use
Projects	None	Enlarge 2 livestock exclosures at Upper & Lower Bill Hill Springs, install an additional trough at Truckbox Spring, reconstruct Beacon Spring and construct a livestock exclosure, and construct ¼-mile of electric fence.		
Vegetative Treatments	None	Mechanically remove junipers above Upper Bill Hill Spring, and treat approximately 100 acres of cheatgrass	Same as Alternative B, plus slash, pile & burn 40 acres of riparian juniper encroachment	Same as Alternative B
Gallagher Mtn. AMP # 30013	Alternative A	Alternative B	Alternative C	Alternative D
Vegetative Treatments	None	Treat approximately 100 acres of cheatgrass	No Alternative C	No Alternative D

Holland-Carrol Iso. # 30618	Alternative A	Alternative B	Alternative C	Alternative D
Projects	None	Remove 1.5 miles of fence	Reconstruct 1.5 miles of fence	No Alternative D
Vegetative Treatments	None	Up to 290 acres of commercial timber harvest, up to 40-acre prescribed fire treatment of lodgepole pine colonization	Same prescribed fire treatment as Alternative B, no commercial harvest	
Kennison Spring # 20182	Alternative A	Alternative B	Alternative C	Alternative D
Livestock Number & Kind	124 C	95 C	No Alternative C	No Alternative D
Grazing Period	10/1 – 2/28	9/1 – 11/30		
Active BLM AUMs	179	179		
Grazing Management	Dormant-season use w/ rest every 4 th year			
Projects	None	Construct a wildlife guzzler.		
Krueger Creek # 10139	Alternative A	Alternative B	Alternative C	Alternative D
Vegetative Treatments	None	20-acre understory burn to remove young Douglas-fir	No Alternative C	No Alternative D
Meine Cow Camp # 20113	Alternative A	Alternative B	Alternative C	Alternative D
Livestock Number & Kind	130 C	15 C 10 H	20 C 21 H	No Alternative D
Grazing Period	10/1 – 2/28	9/1 – 3/31	10/1 – 2/28	
Active BLM AUMs	45	45	45	
Grazing Management	Dormant season use	Dormant season use	Dormant season use	
Projects	None	Water development	Water development	
PHW # 30031	Alternative A	Alternative B	Alternative C	Alternative D
Livestock Number & Kind	320 C 46 C			No Alternative D
Grazing Period	5/16 – 8/30 5/16 – 8/31			
Active BLM AUMs	1081 163			
Grazing Management	6-Pasture Grazing System (some pastures rested every 3-4 years)	8-Pasture Rest Rotation Grazing System (All pastures rested every 3-5 years)	8-Pasture Rest Rotation Grazing System (All pastures rested every 3-4 years)	
Projects	None	Install 1 mile of fence to create 2nd pasture, Install 1 mile of fence to create riparian pasture		

Polaris # 20186	Alternative A	Alternative B	Alternative C	Alternative D
Livestock Number & Kind	3 C		No Alternative C	No Alternative D
Grazing Period	5/1 – 11/30			
Active BLM AUMs	21			
Grazing Management	Custodial	Custodial; horses authorized		
Rattlesnake # 10510	Alternative A	Alternative B	Alternative C	Alternative D
Livestock Number & Kind	16 C	88 C	232 C	No Alternative D
Grazing Period	11/25 – 6/8	4/25 – 5/31	4/25 – 5/31	
Active BLM AUMs	103	107	53	
Grazing Management	Custodial	Up to 232 cattle for 14 days	Up to 232 for 7 days; alternating rest	
Rebich #2 # 20184	Alternative A	Alternative B	Alternative C	Alternative D
Vegetative Treatments	None	Up to 427 acres of commercial timber harvest	No Alternative C	No Alternative D
Red Mine # 30034	Alternative A	Alternative B	Alternative C	Alternative D
Projects	None	Install up to 4 water troughs for hauled water, 5-acre livestock enclosure around wetland (56), 0.5-mile fence along Taylor Creek (44), 0.1-mile drift fence	Same as Alternative B, except construct up to 1 mile of pipeline, install up to 4 troughs, and pump water from Taylor Creek (43) for off-site water, instead of hauling water	No Alternative D
Red Spring # 10120	Alternative A	Alternative B	Alternative C	Alternative D
Projects	None	Construct wildlife guzzlers.	No Alternative C	No Alternative D
Reservoir Creek AMP # 30030	Alternative A	Alternative B	Alternative C	Alternative D
Travel Management	None	Open about 1 mile of road 4/1-4/30.	No Alternative C	No Alternative D

Rocky Hills # 10148	Alternative A	Alternative B	Alternative C	Alternative D
Livestock Number & Kind	1343 Y 986 Y	1343 C 986 C	1343 C 986 C	No Alternative D
Grazing Period	5/1 – 6/20 5/1 – 5/10	5/1 – 6/20	5/1 – 6/10	
Active BLM AUMs	1621 311	1621 311	1303 311	
Grazing Management	Season long	5-Pasture Grazing System(some pastures rested every other year)	5-Pasture Grazing System(All pastures rested every other year)	
Projects	None	Fence Rocky Point spring source. Abandon & reclaim Canyon Spring development. Construct a 12-acre riparian enclosure around the Canyon Spring drainage. Divert water from lower end of spring brook and pipe to stock tanks on upland benches below enclosure.	Construct a livestock enclosure around reach 96, Abandon & reclaim Canyon & Rocky Point Spring developments. Fence Rocky Point spring source & construct a 12-acre riparian enclosure around the Canyon Spring drainage (Same as Alt B.)	
Vegetative Treatments	None	Conduct 2 prescribed burns of 685 and 400 acres. Aerially treat 500 acres of spotted knapweed.	None	
Scudder Creek AMP # 30028	Alternative A	Alternative B	Alternative C	Alternative D
Livestock Number & Kind	235 Y	230 Y 56 C	230 Y 112 C	115 C
Grazing Period	5/21 – 6/20	6/5 – 6/20 9/15 – 11/15	6/5 – 6/20 9/15 – 10/15	9/15 – 11/15
Active BLM AUMs	225	221	221	221
Grazing Management	Spring use annually	Alternating use in each pasture	Spring, fall, rest in each pasture	Dormant season use
Vegetative Treatments	None	Seed up to 600 acres w/ introduced species	Seed up to 600 acres w/ native species	None

West Big Hole Road # 10503	Alternative A	Alternative B	Alternative C	Alternative D
Livestock Number & Kind	149 C 163 C	90 C 96 C	No Alternative C	No Alternative D
Grazing Period	5/1 – 6/15	3/15 – 5/31		
Active BLM AUMs	14 128	14 128		
Grazing Management	Alternating Rest in each pasture	Alternating Rest in each pasture		
Projects	None	Fence removal. Construct a wildlife guzzler.		
Unallotted – Eli Springs	Alternative A	Alternative B	Alternative C	Alternative D
Grazing Management	None	Trailing permits considered		No Alternative D
Projects	None	(3) barbed-wire gates, fence maintenance	(3) 12' cattle guards, fence maintenance	
Unallotted – Ney Ranch	Alternative A	Alternative B	Alternative C	Alternative D
Vegetative Treatments	None	TNR livestock grazing, when deemed necessary	No Alternative C	No Alternative D
Unallotted – Small Horn Canyon	Alternative A	Alternative B	Alternative C	Alternative D
Vegetative Treatments	None	Up to 795 acres of commercial timber harvest	No Alternative C	No Alternative D

3.0 Affected Environment

This chapter describes the existing condition of specific environmental components that may be affected by the proposed action. The description of the affected environment is related to the specific issues and resource concerns identified in Chapter 1. This chapter provides a summary of the baseline environment. A more detailed discussion of relevant affected resources can be found in the BWW Assessment Report, which is incorporated into this document by reference. Copies of the assessment report are available from the BLM Dillon Field Office or may be accessed online at http://www.blm.gov/mt/st/en/fo/dillon_field_office.html.

3.1 General Setting

Within the watershed boundary, elevations range from about 4,800 feet, near the Big Hole River, to above 10,000 feet on Baldy Mountain, west of Polaris. Lands administered by BLM within the BWW receive 8 to 24 inches of average annual precipitation. Soils in the BWW are primarily affected by climate (temperature and precipitation), topography (slope and aspect), and parent material (geology and geomorphology). The soils in this watershed fall into the Aridic and Ustic soil moisture regimes and are in the Frigid (generally below 6,400 feet elevation) and Cryic (generally above 6,400 feet elevation) soil temperature regimes.

The soils within the watershed formed from a variety of parent materials and the major landforms include: flood plains, stream terraces, outwash terraces, alluvial fans, escarpments, hills, moraines and mountain slopes. Slopes range from nearly level and undulating (1 to 8 percent) to very steep (more than 45 percent). Soil textures are mainly sandy loams, loams, and clay loams; soil depths vary from shallow (less than 20 inches to a root restrictive layer) to very deep (more than 60 inches to a restrictive layer). The relative amount of lime or calcium carbonate within the rooting zone, as measured by observable effervescence with hydrochloric acid, ranges from none to more than 40 percent; salinity and sodicity (alkalinity) occur within the assessment area to a minor extent.

Vegetation in the watershed reflects the diversity of ecological conditions across the landscape. The dominant plant communities and habitat types change according to soils, precipitation, elevation, slope, and aspect (direction the slopes are facing). A wide variety of vegetation is found, from wetland and riparian species dependent on water and moist soils, to sagebrush and grass dominated plant communities that thrive on dryer upland sites. Forested habitats occur on the higher elevations. This diverse landscape provides habitat and structural niches for a wide variety and abundance of wildlife.

Evidence of past wildfires is apparent throughout the watershed. Fire scars on living trees, charred wood, and historic photographs indicate that fire has played an active role in shaping the existing vegetation. Other past activities that affect existing vegetation include sagebrush spray treatments to reduce sagebrush cover and promote grass production, and commercial and non-commercial forest product removal. More information on fire history and past vegetative treatment can be found in the BWW Assessment Report.

3.2 Description of Affected Resources/Issues

3.2.1 Issue #1: Upland Health, Sagebrush Steppe Habitat and Associated Species

Most of the watershed's public land uplands are dominated by either grasslands (20%) or sagebrush (68%), including mountain big sagebrush, Wyoming big sagebrush, basin big sagebrush, and three-tip sagebrush. Some of the prominent herbaceous species included in the grasslands are bluebunch wheatgrass, western wheatgrass, Sandberg's bluegrass, needle and thread, prairie junegrass, and Idaho fescue. These same cool season grasses are prominent understory vegetation in the sagebrush habitat types.

Mountain big sagebrush is the dominant habitat type, providing crucial winter habitat for mobile wildlife species such as mule deer, pronghorn antelope, and sage grouse, and localized yearlong habitat by sagebrush-obligate species such as pygmy rabbit and sage grouse. Sage grouse nesting usually occurs within two miles of the lek, where suitable habitat is available.

Intermingled occurrences of basin big sagebrush, tall three-tip sagebrush, and several low sage species add to the diversity of vegetation and habitat structure. Existing wildlife uses are described further in the BWW Assessment Report beginning on page 36. Table 14 of the BWW Assessment Report lists primary game species and associated habitats within the BWW.

The allotments on the south-east face of the Pioneer Mountains (Kennison Spring, Bell Ranch, Frying Pan, and West Big Hole Road) and the Rocky Hills allotment have very limited water resources. Dependable water is a limiting factor in the use of these allotments by wildlife and prohibits wildlife use during certain times of the year or wildlife may have to travel up to five miles for water. This limitation of available water may be preventing use of otherwise suitable habitat in the area.

The vast majority of the uplands in the watershed are functioning properly and meeting the Standard for Upland Health. Forty-five grazing allotments, as well as the unallotted parcels, comprising 94% of the public uplands in the BWW assessment area, are functioning properly under existing management. Six allotments, comprising approximately six percent of the public uplands in the BWW, are FAR with a static or downward trend. On the sites rated PFC or FAR with an upward trend, the quantitative monitoring data supports the findings of the ID team. The ecological condition at these upland sites is stable or improving.

The six allotments that did not meet the upland standard are Scudder Creek AMP, Frying Pan, B-Rock, Antelope Butte, Rattlesnake and Beaverhead Rock. Allotment and site specific concerns are described in detail in the BWW Assessment Report.

The Anderson Field, PHW, and Rocky Hills grazing allotments were meeting the upland standard, overall, but the IDT identified resource concerns related to upland health in specific pastures. The resource concerns were altered vegetative composition, decreased cover, low vigor of palatable species, moderate reductions in litter and annual production, and/or increased bare ground as compared to what is expected for the sites.

Other IDT concerns are a decline in the composition and vigor of cool-season bunchgrasses on the Argenta Flats allotment, unauthorized grazing by feral goats impacting mountain mahogany

on and near the Barretts allotment, off-highway vehicle use on the Kennison Spring and Rattlesnake allotments, and noxious weed and cheatgrass infestations occurring in various locations throughout the BWW. There is a relatively large infestation of spotted knapweed in the Rocky Hills Allotment that is difficult to access due to its location just south of Grasshopper Creek and between Bannack and Frenchie Place. This area was aerially sprayed in 1999 and the control achieved has been good with the infestation just starting to reappear in the last couple of years. The area between Gallagher Creek and Bill Hill has a few localized heavy infestations of spotted knapweed and houndstongue that have been treated both aerially and with ground based equipment, with a resulting decrease in both size and density of the infestations.

There are three small infestations of leafy spurge found in the BWW. One is an infestation that was found in a small adit on the Bill Hill Road in the Gallagher allotment, the second is on a small unallotted parcel along the Big Hole River and the third is found in the bottom of a draw in the Beaverhead Rock allotment. All these infestations are small enough that containment and eventual eradication are possible. In fact, no leafy spurge plants were found in the Gallagher allotment site in 2007

The upland plant composition along the forest/sagebrush ecotone and within mid-elevation aspen stands, within the BWW, is changing toward a more conifer-dominated community as discussed below.

Forest and woodland habitats comprise approximately 22% of all ownerships, and approximately eight percent of BLM-administered land in the BWW. As a result of fire exclusion, conifer densities have increased within forested stands, and conifers have expanded into opening and sagebrush/grasslands at low to mid-elevations.

Conifer expansion and fuel loading concerns documented in the Assessment Report include:

- Douglas-fir colonization on more than 1,000 acres of what was once grass and sage in the Rocky Hills allotment.
- Replacement of grasses, sagebrush, and willows by Rocky Mountain juniper in the Gallagher and Anderson Field allotments.
- Lodgepole pine colonization into a 40-acre grass/sagebrush park in the Holland-Carroll Isolated allotment.
- Increased fuel loading in the Krueger Creek drainage.

Forest health concerns documented in the Assessment Report include:

- Increasing spruce budworm and mountain pine beetle activity in untreated stands in the Small Horn Canyon area.
- Increasing mountain pine beetle, dwarf mistletoe, and Comandra blister rust activity in untreated lodgepole pine stands in the Holland-Carroll Isolated allotment.
- Defoliation of Douglas-fir by spruce budworm, particularly in the Sheep Creek and Small Horn Canyon areas.
- Epidemic Douglas-fir bark beetle activity in the Grasshopper Valley.

3.2.2 Issue #2: Riparian, Wetland, and Aquatic Habitat and Associated Species

The BWW is located within three Level 4 USGS Hydrologic Units. Portions of Beaverhead River, Red Rock River, and Big Hole River hydrologic units are all located in the BWW. There are approximately 36 miles of streams within the BWW. Major streams include Bill Hill, Frying Pan, and Gallagher Creeks, which drain to the Beaverhead River; Farlin, Krueger, and Shale Creeks, which drain to Grasshopper Creek; and Sheep Creek, which drains to Blacktail Deer Creek.

Riparian condition (lotic) on 18 stream miles was PFC. Five miles were FAR with an upward trend. Eleven miles were FAR with a static or “not apparent” trend and less than one mile rated as nonfunctioning. Lentic condition for the half acre Gravel Pit Pond was PFC. Forty five acres of other wetlands, mostly wet meadows, were PFC. Five acres were FAR with an upward trend and 29 acres were FAR with a static or “not apparent” trend.

Wildlife resources associated with this habitat seasonally or year around include, but are not limited to elk, mule deer, sage grouse, bald eagles, hawks and migratory birds. Many species of migratory birds use riparian habitat for nesting and sage grouse rely on this habitat for brood rearing during the summer.

Physical resource concerns associated with streams include alteration of stream morphology (channel shape and gradient), sedimentation and deposition. Vegetation related concerns include lack of regeneration of woody species (i.e. willow, aspen, and cottonwood), composition, cover, structure, and vigor of streamside vegetation.

Comprehensive digital National Wetland Inventory (NWI) mapping is not available throughout the State of Montana, thereby limiting the ability to summarize the extent of wetland resources. However, the BLM does have NWI draft maps from the 1990s that provide valuable baseline data within the assessment area. No comprehensive soils data is available to determine the extent of hydric soils. Given these limitations, certain conclusions can still be drawn. The majority of wetlands within the watershed fall into two broad categories, palustrine and riverine. The water regime for the majority of these wetlands is intermittent, (i.e. they are only seasonally wet), making them difficult to identify in the field. Generally they are found in depressions and drainageways. The major ecological functions of these seasonally flooded wetlands, (e.g. groundwater recharge, flood mitigation, sediment filtering) have not been diminished by authorized uses. The long term drought is having an effect on vegetation wherein upland vegetation is outcompeting wetland vegetation. It is common, however, for wetlands to expand and contract in response to hydrologic cycles (Tiner 1999). Research and funding is increasing in an effort to develop comprehensive NWI mapping and soils survey information.

According to the Range Improvement Project database (June 2007) there are 30 developed springs in the BWW. Six of these are in the Anderson Field allotment. There are five spring developments each in the Conover AMP and Gallagher allotments, and four spring developments on the Rocky Hills allotment. The PHW and Red Mine allotments have two spring developments each, while the Bell Ranch, Frying Pan, and Scudder Creek AMP allotments each have one spring development.

The ID team did not do a comprehensive inventory of developed springs, which date back to the 1940s. However, the ID team did look at a number of developed springs. Some developed springs were functioning as originally planned while others exhibited reduced wetland function due to soil compaction and/or loss of vegetation. Current regulations (4180) establish standards and guidelines for the management of springs and seeps. These standards and guides require the BLM to protect the ecological functions and processes of these resources. Springs found to be in poor condition are evaluated based upon productivity and other ecological factors.

Conditions were reported for five springs, two developed and three undeveloped. The three undeveloped springs were PFC. One of the developed springs was FAR with an upward trend; the other was FAR with a static or “not apparent” trend. Condition and productivity was not determined for every developed spring, however observations throughout the area indicate that some springs had reduced productivity and lowering of water tables, which may also be related to the long term drought.

The portion of the Beaverhead River that flows through the Gallagher allotment and the unallotted Ney Ranch parcel is currently being impacted by severe water fluctuations related to seasonal water releases from Clark Canyon Dam. Extreme low flows released from the dam in winter is reducing winter habitat for all species. Brown trout, in particular, have been impacted, due to low flows impacting their spawning success in the river. The upper reaches of the Beaverhead River support an extremely popular sport fishery. Anglers from all over the world come to fish the upper reaches of the river. The Beaverhead provided over 39,000 angler use days in 2005. The majority of use occurs in the upper five miles of the river.

The Big Hole River supports one of the most popular cold water sport fisheries in the state, with over 40,000 angler use days recorded for 2005. Most use occurs in the middle reaches of the drainage.

Divide Creek, located in the Blacktail Mountains, supports populations of highly hybridized cutthroat trout, eastern brook trout, and mottled sculpin. During the assessment of this stream, large numbers of fish were observed by the ID team.

A population of what appeared to be cutthroat trout was observed in a tributary of Sheep Creek within the Gallagher Mountain AMP (stream reach 9) and the Flynn Draw (reach 30) allotments. Additional fisheries surveys are needed to determine the species.

While the BLM does not manage any lands that border Grasshopper Creek, it does manage land within a very close proximity to the stream. Due to the proximity to the stream, management actions taken by the BLM on these lands could affect water quality and fish habitat within the drainage.

Impacts to fish habitat come primarily from historic mining sites, livestock use, dewatering, and roads.

3.2.3 Resource Concern #1: Special Status Species

Special Status Plants

At least 16 sensitive plant species are known to inhabit public lands within the BWW. A complete list of these sensitive plants and a brief description of their habitat are presented in the watershed assessment report. Eight of these plants, presented in Table 3.1, are either palatable or occupy habitats that may be directly or indirectly affected by the proposed action.

Table 3.1: Sensitive Plants That May Be Affected By the Proposed Action

Sensitive Plant Species	Habitat	Potential Impacts
Bitterroot Milkvetch	Sagebrush steppe	May be vulnerable to impacts associated with cattle grazing
Idaho Sedge	Subirrigated soils and streamside meadows associated with low-gradient streams, springs & seeps	May be vulnerable to impacts associated with cattle grazing and competition with Kentucky bluegrass
Lemhi Beardtongue	Sagebrush steppe and open coniferous forests	May be vulnerable to impacts associated with cattle grazing, road maintenance and fire suppression
Meadow Lousewort	Wetlands and riparian meadows	May be vulnerable to hydrologic alterations
Mealy Primrose	Saturated, often calcareous wetlands and wet meadows	May be vulnerable to impacts associated with cattle grazing and hydrologic alterations
Railhead Milkvetch	Sagebrush steppe	May be vulnerable to impacts associated with cattle grazing
Rocky Mountain Dandelion	Open riparian and wetland areas	May be vulnerable to competition from the introduced dandelion
Slender Thelypody	Moist swales & alkaline meadows	May be vulnerable to impacts associated with cattle grazing

Special Status Fish

Native westslope cutthroat trout (WCT) have declined to three small populations within the watershed. All three populations on BLM in the assessment area are characterized by small isolated populations found in marginal habitat. All are at extreme risk of extirpation due to non-native species competition and restricted habitat

Farlin Creek is currently the only known stream on BLM-administered land in the watershed that supports a genetically pure population of WCT. Genetic testing of WCT in Farlin Creek, in 1990, indicated a genetically pure population in the drainages. A non-native population of eastern brook trout in this stream poses a serious threat to the long term persistence of this population. A 2004 fishery survey, conducted by BLM fishery personnel, found non-native brook trout the most common species in all stream sections surveyed.

A genetically pure population of WCT occupies the headwater reaches of Taylor Creek, located on Forest Service lands. To date, WCT have not been found on the lower portion that borders BLM land.

Browns Creek supports genetically pure WCT in stream reaches upstream of BLM lands. The reach (60) within the assessment area is actually a diversion for stock water and irrigation, and

does not support a year round fishery. However, occasional WCT may be present when stream conditions permit (i.e., high stream flows).

Degraded habitat, non native species and low water have restricted arctic grayling in the Big Hole River to historic low numbers in traditional survey reaches for this population.

Special Status Wildlife

Special status species are vital to maintain the biodiversity in the watershed. With the recent de-listing of the gray wolf, no threatened or endangered species occur within the watershed. Table 13 of the BWW Assessment report lists all BLM sensitive species that occur within the BWW during all or part of the year. Sage grouse are found throughout the watershed in sagebrush steppe habitat. Throughout the watershed, overall sagebrush habitat requirements are being met for sage grouse and pygmy rabbits. The exceptions to this would be herbaceous cover for nesting habitat and brood rearing within pastures of the Rocky Hills, Red Mine, Scudder Creek AMP and Anderson field allotments, that may not be meeting requirements as outlined in the *Management Plan and Conservation Strategies for Sage Grouse in Montana*. There are six known active leks within the allotments assessed in the BWW. There are numerous active leks in the adjacent watersheds as well as several leks that have not had any activity for the last few years.

3.2.4 Resource Concern #2: Recreational Opportunities and Public Access

The majority of lands within the BWW are used yearlong for a variety of dispersed recreational uses including big game and limited upland bird hunting, off-highway vehicle use, camping, mountain biking, hiking, wildlife viewing, and fishing and floating on the Big Hole River. The heaviest recreational use of these lands occurs during the big game hunting seasons, increasing the intensity of off-highway vehicle use and camping. Approximately 230 miles of vehicle routes are designated open to motorized wheeled vehicles within the BWW. These open routes provide important access to national forest lands in the Pioneer Mountains, as well as recreational opportunities on BLM lands along the Big Hole River, in the Rocky Hills/Henneberry Ridge area, and other BLM administered public lands surrounding Dillon. The BLM has had a request from the local sage grouse working group to open approximately one mile of closed road for the month of April to allow the public an opportunity to view sage grouse dancing on the lek.

3.2.5 Resource Concern #3: Socioeconomics

There are 38 individual permittees/lessees currently authorized to graze livestock for a total of 13,184 active AUMs on the allotments included in this EA. Meetings with these permittees indicate that these ranch operations have tightly woven public land grazing preferences together with private land management. In most cases, private land owned by the permittees is adjacent to and/or intermingled with these public land allotments. Changes in numbers of livestock, seasons of use, and/or increased labor inputs may have considerable economic impacts on individual operations.

Three commercial outfitters are authorized under Special Recreation Use Permits to conduct big game hunting and/or summer horseback riding in all or part of this area. Total commercial use days associated with these permits is approximately 135 client days. Non-commercial hunting

and fishing opportunities on BLM lands in the BWW provide an important economic contribution to the local economies of Dillon and other nearby communities.

Dillon Field Office records indicate that authorized sales of forest products from 1954 to 1992 were about 19 million board feet of saw log material, over 110,000 post/pole size trees and over one-quarter million board feet of firewood. The opportunity for forest products related employment has declined substantially since the 1980's. The number of local and/or regional milling facilities that process more than one million board feet per year has declined from seven to two, neither of which are located in Beaverhead or Madison Counties. On a local basis, logging related job opportunities have declined due to the uncertainty of employment. Milling facilities and other timber sale purchasers presently rely on subcontracting workers.

For a full analysis of social and economic conditions for Beaverhead and Madison counties refer to the Proposed Dillon RMP and EIS Vol. 1 beginning on page 250.

3.2.6 Critical Element: Areas of Critical Environmental Concern (ACECs)

The northeast part of the watershed contains two geologic formations known as Beaverhead Rock and the Hogback. The Beaverhead Rock Area of Critical Environmental Concern (ACEC) is one of a few physiographic features mentioned specifically in the journals of Lewis and Clark and is a prominent and important feature of the Lewis and Clark National Historic Trail. The Hogback is partially contained in the southern portion of the Block Mountain ACEC. The Block Mountain ACEC is known for its unique geologic outcrops and is a popular area for geology field camps, geologists, and others interested in studying the formation.

3.2.7 Critical Element: Cultural Resources

In conjunction with the Mountain Foothills Grazing EIS in the late 1970s, a Class II cultural resource inventory was conducted for a 10% sample of lands within the Dillon Resource Area. Results of the inventory located a mixture of prehistoric and historic sites throughout the watershed. Four areas of unusually high site density were identified by the inventory within the watershed. Prehistorically, the BWW was occupied continuously from approximately 10,000 years ago. Prehistoric sites within the watershed consist primarily of small habitation or procurement sites.

Historically, portions of the BWW were originally explored by Lewis and Clark in the summer of 1805 eventually leading to further explorations during the fur trade in the 1830s. Early settlements were established following the discovery of precious minerals in Bannack in 1862 and later in Argenta in 1865. A stage stop was located near Point of Rocks for the Bannack to Virginia City stage road, which traveled through the watershed providing transportation between these two important mining towns. Early ranching began in the area in 1866 when Michael B. Henneberry established a ranch near Pipe Organ.

Beaverhead Rock ACEC is one of a few physiographic features mentioned specifically in the journals of Lewis and Clark and is a prominent and important feature of the Lewis and Clark National Historic Trail. While traveling with Lewis and Clark and the Corps of Discovery on August 8, 1805, Sacajawea recognized the point of a high plain. Sacajawea's people knew this prominent landscape feature as "the beaver's head." Recognition of this feature was important to

the Corps of Discovery because it informed the company that the land of the Shoshone was not far and they might obtain horses for faster cross country travel. It also told them that the Continental Divide was close at hand, where they would encounter rivers that flow into the Pacific. Beaverhead Rock has also been identified as a feature of historic ethnographic importance to the Salish and Kootenai tribes as a recognized Trail landmark that was often used as a location for intertribal camps and large gatherings.

3.2.8 Critical Element: Wilderness Characteristics

There are no designated wilderness areas in the BWW. The BWW contains portions of the Henneberry Ridge and Farlin Creek Wilderness Study Areas (WSA) which are managed in accordance with the *Interim Management Policy (IMP) for Lands Under Wilderness Review* (BLM Handbook H-8550-1). Management according to this policy is intended to ensure that wilderness values contained in this area are not impaired until such time as Congress either designates these areas as part of the National Wilderness Preservation System, or releases them from further consideration as wilderness. The Henneberry Ridge WSA contains a total of 9,806 acres and the Farlin Creek WSA contains 1,139 acres identified to complement to the USFS's West Pioneer Mountains WSA. The wilderness recommendation for Farlin Creek WSA included 610 acres recommended for wilderness designation adjacent to FS lands. The remaining lands within Farlin Creek WSA, and all of the Henneberry Ridge WSA, have been recommended by the BLM for non-wilderness. Although this was BLM's recommendation to the President in 1991, the entire area currently remains under the management of the IMP.

“Wilderness values were identified in Section 2(c) of the Wilderness Act of 1964. The BLM Wilderness Inventory Handbook (Organic Act Directive No, 78-61, dated 9/19/78) further defined wilderness values as: roadlessness, naturalness, solitude, primitive and unconfined recreation, size, and supplemental values. Actions that clearly benefit a WSA's wilderness values through activities that restore, protect, or maintain these values are allowable. Though they may enhance wilderness values, these allowable actions must still be carried out in a manner which is least disturbing to the site.” (IMP, Chapter 1B #6, p. 10)

Two springs within the Henneberry Ridge WSA were identified by the livestock permittee as requiring maintenance prior to the watershed assessment work being completed. These included the Canyon Spring and Rocky Point Spring near Madigan Gulch in the southwest portion of the WSA, and will be discussed further in this document. These springs were both developed prior to the wilderness inventory. Impacts from feral horses, wildlife and domestic livestock congregating around the springs to water over the past 100 years impacted the surrounding area and somewhat degraded the natural conditions and processes of the springs. Other impacts to wilderness values can be found in the Final Wilderness Environmental Impact Statement for the Dillon Resource Area (February, 1987).

4.0 Environmental Consequences

4.1 Introduction

This chapter discloses the scientific and analytic basis for comparison of the alternatives and describes the probable consequences (impacts, effects) of each alternative on the driving issues and resource concerns. The environmental consequences are analyzed and disclosed by alternative. This chapter also discloses the cumulative, or combined, impacts of alternative actions with past, present and reasonably foreseeable actions within the watershed.

4.2 Predicted Effects of Alternatives

4.2.1 Predicted Effects Common to All Alternatives, Including the No Action

Term Grazing Permits will be renewed with the current terms and conditions on the 31 allotments that were determined to be meeting Land Health Standards and had no identified site specific concerns related to current livestock grazing management. These allotments include: Bachelor Mountain, Barretts, Bell Ranch, Big Hole Road, Brown's Canyon, Bryan, Buzztail, Conover AMP, Frying Pan Basin, Gallagher Mtn. AMP, Grasshopper, Hayden, Henneberry Ridge Cust., Henneberry Ridge #2, Hildreth Individual, Hogback, Krueger Creek, Lovells Lk. Non-AMP, Lower Reservoir Cr., Meine, Meine Homestead, Pipe Organ Rock, Rebich, Rebich #2, Red Spring, Selkirk, Slinger, Shale Creek, Small Horn Canyon, Timber Butte Isolated, and Tucker Creek. Current management is facilitating/allowing healthy conditions on BLM administered public lands within these allotments.

Human activities, such as road maintenance activities, recreation, gravel mining, and other disturbances, as well as livestock, wildlife, wind, water and fire have the potential to spread noxious and invasive species (weeds) into and within the watershed.

Predicted effects of implementing forest management activities in Shale Creek and Krueger Creek were identified and analyzed in the Grasshopper Fuels Management EIS. The primary environmental impacts identified included reduced surface, ladder and canopy fuels; reduced fire behavior and threats to private property on a local level; increased structural diversity; improved long-term forest health; no change to Canada lynx habitat or inventoried roadless areas; compliance with visual quality objectives; mitigation of potential for short-term sediment delivery from road construction and crossings through design features.

Carefully planned monitoring under all alternatives will provide data for adaptive management within the BWV. The monitoring plan for the BWV is attached as Appendix B.

Issue #1: Upland Health, Sagebrush Steppe Habitat and Associated Species

Removing the feral goats from the Barretts #30014 allotment will reduce grazing impacts to native shrub species, particularly curl-leaf mountain mahogany, and reduce competition for browse with mule deer and antelope. Removal of old fences and modifications to sheep fences, that restrict passage, will allow for easier movements between seasonal habitats for wild ungulates, lower the threat of wildlife entanglement, and reduce flight collisions of avian species.

Potential wildfires will produce smoke emissions that may adversely impact the public and affect air quality.

Issue #2: Riparian, Wetland, and Aquatic Habitat and Associated Species

Riding and herding are encouraged under all alternatives including the no action. Riding has been recommended for years as a tool to move livestock away from riparian areas, but has not always been successful as livestock often return once the riders are gone. Low stress livestock management may increase the success of riding and in turn improve vegetative recovery. TR 1737-20 Grazing Management Processes and Strategies for Riparian-Wetland Areas (2006) states “Successful application of low-stress stockmanship enables the rider or range manager to control the duration that plants and soils are exposed to grazing animals. This controls overgrazing and over resting, both of which lead to deterioration of range health. Proper handling can thus improve livestock distribution and rangeland condition and trend, and it can lead to improved riparian conditions that benefit fisheries and wildlife while improving water quality. Livestock can be moved away from critical habitat at critical times to minimize social displacement of wildlife (e.g. elk and deer winter range, fawning sites)” (Mosley 1999).

Resource Concern #1: Special Status Species

A summary table and a detailed discussion of predicted effects and potential impacts to special status plant species and their habitat is provided in the Biological Evaluation (BE) for Special Status Plants on BLM Lands in the Beaverhead West Watershed. A Short Form BE for Special Status Fish and Wildlife Species provides a summary of whether or not special status fish and wildlife species are affected by the proposed alternatives. Both BEs are filed in the BWW project file (central files 1792). Potential site-specific impacts to special status species are included in the allotment discussions below where appropriate. Amending grazing permits to state that livestock losses may occur from wolves will create awareness and minimize conflicts between permittees and agencies responsible for managing the wolf population. Predicted effects under all alternatives are not expected to impact any T&E species.

The population of trout in the tributary to Sheep Creek in the Gallagher Mountain AMP and Flynn Draw allotments has not been identified to species. If they are found to be cutthroat trout, genetic samples would be collected and submitted for testing. Stream surveys are planned for 2008.

Resource Concern #2: Recreational Opportunities and Public Access

Although recreational use is expected to continue increasing in southwest Montana, implementing the travel management decisions of the RMP by improving route signing is expected to continue reducing off-road vehicle use by providing clear signing of designated routes. Increasing use of designated routes might make the imprint of those routes on the landscape more noticeable, and could further improve backcountry navigation for most recreational visitors.

Critical Element: Areas of Critical Environmental Concern (ACECs)

There would not be any impacts to the geological features of the Beaverhead Rock and Block Mountain ACECs under any of the Alternatives.

4.2.2 Predicted Effects of Alternative A - No Action (Continuation of Current Management)

Under this alternative, site-specific objectives would not be met and some allotments would continue being out of conformance with the Standards for Rangeland Health (43 CFR 4180).

Issue #1: Upland Health, Sagebrush Steppe Habitat and Associated Species

Under Alternative A, the decreasing trend of cool season grasses on the six allotments not meeting the Upland Standard (Antelope Butte, Beaverhead Rock, B-Rock, Frying Pan, Rattlesnake, and Scudder Creek AMP) would continue. Progress would not be made towards meeting PFC or site specific objectives under Alternative A on the five allotments of concern.

Repeated annual defoliation during the early and mid growing season, particularly during early flower development, usually has the most negative impact on cool season herbaceous plants growing in the intermountain sagebrush steppe (Daubenmire 1940, Stoddart 1946, Blaisdell and Pechanec 1949, Heady 1950, Wilson et al. 1966, Mueggler 1967, Trlica and Cook 1971, Harris and Goebel 1976). Because of dietary preference, spring grazing by cattle gives unpalatable shrubs or low production grasses a competitive advantage over cool season perennial bunch grasses. The sensitivity of these grasses to grazing may be as much or more due to the competitive interaction with ungrazed or warm season species such as sagebrush or blue grama, respectively. The effect of selective grazing on interspecific competition may override a plant species tolerance to grazing (Archer and Teizen 1986). Grazing avoidance-type plants often gain the competitive advantage over grazed plant species (Archer and Smeins 1991).

One of the goals of the *Management Plan and Conservation Strategies for Sage Grouse in Montana* (2005) is to “Manage grazing to maintain the soil conditions and ecological processes necessary for a proper functioning sagebrush community that addresses the long term needs of sage grouse and other sagebrush associated species.” Management actions would not be implemented to “enhance” sagebrush dependent species under this alternative.

Current management does not promote allowable use guidelines to manage for residual herbaceous cover. Loss of habitat is the greatest threat to pygmy rabbits in Montana (Rauscher 1997). Forage preference for this species includes wheatgrass and bluegrass in summer and almost exclusively big sagebrush in winter (Foresman 2001). This alternative may not provide for adequate herbaceous cover for nesting sage grouse or pygmy rabbit foraging within allotments not meeting the upland standard.

Suitable habitat conditions exist for sagebrush obligate species on allotments meeting upland and biodiversity standards. Under Alternative A, habitat conditions for sagebrush obligate species are expected to continue being met under existing management of the 31 allotments listed above (Sect. 4.2.1). On the Anderson Field, Krueger Creek, and Rocky Hills allotments, juniper and Douglas-fir would continue to expand into sagebrush habitat, reducing the suitability for sagebrush obligate species on approximately 1200 acres identified within the BWW. Lack of rest pastures in some allotments would not provide as much big game winter forage, as might otherwise be available. Dependable season long water for wildlife would be lacking within the Kennison Spring, Bell Ranch, Frying Pan, Big Hole Road, West Big Hole Road and Red Spring allotments. See Resource Concern #1 below for analysis on sensitive species habitat.

Conifers would continue to expand into forest openings and sagebrush/grasslands. As stated in Hyerdahl et al. (2006), “in the continued absence of fire, mountain big sagebrush and grasslands in southwestern Montana are likely to become more homogeneous as Douglas-fir trees continue to encroach.”

The density, structure and species composition of forest stands would continue to be departed from historic conditions without a natural disturbance. Continuation of the spruce budworm outbreak would result in additional defoliation, reduced growth, and predisposition to attack by other insects and diseases. Repeated defoliation by spruce budworm may result in top-killing and tree mortality (Fellin and Dewey 1992). Bark beetles would continue to cause mortality of lodgepole pine and subalpine fir. Continued insect and/or disease activity would result in decreased canopy cover, increased fuel loading, reduced forest health, and the potential for more severe impacts from wildland fire.

South of Black Mountain, on the Holland-Carrol Isolated allotment, mortality of overstory lodgepole pine would increase due to suitable stand conditions for mountain pine beetle activity. Lodgepole pine regeneration in previously treated areas would not be susceptible to mountain pine beetle for the next 20 to 60 years; however these areas would likely become infested with dwarf mistletoe and/or Comandra blister rust from adjacent overstory stands that would not be treated under this alternative. Dwarf mistletoe is the most damaging disease agent in lodgepole pine, and would continue to cause severe growth loss and increased mortality (Hawksworth and Dooling 1998). Occurrence of Comandra blister rust would result in growth reduction, stem deformity, and mortality (Johnson 1997).

Issue #2: Riparian, Wetland, and Aquatic Habitat and Associated Species

The No Action Alternative would not accomplish riparian, wetland, or aquatic objectives along stream reaches or at springs where resource concerns were identified. Alteration of stream morphology (channel shape and gradient), vegetative composition, cover, and structure, conifer encroachment, vigor of streamside vegetation (specifically aspen, willows and sedges) and excess sediment input would continue. Negative impacts to wet meadows, spring sources, and spring brooks would continue and ecological functions would continue to be degraded in these areas. In the case of dysfunctional spring developments and/or spring enclosures in disrepair, provisions exist to address these conditions even in the No Action Alternative.

Some riparian and wetland habitats would continue to be subjected to heavy or improper grazing under Alternative A. Continuing the current authorized grazing on FAR and NF riparian habitats would perpetuate heavy utilization of woody and/or herbaceous vegetation and/or streambank impacts from trailing. Limited cover, plant species diversity dominated by less desirable woody and herbaceous species, and low structural diversity that limit wildlife uses would be sustained on some streams. Small areas of riparian habitat associated with isolated springs, both developed and undeveloped, would continue to be impacted by authorized livestock use.

Where conifer encroachment was determined to be a primary cause of FAR conditions, riparian vegetation would continue to decline under this alternative as conifers increase.

Current impacts and trends to fish habitat would continue under Alternative A. Fish habitat in an upward, downward or static trend would likely continue. In situations where habitat conditions are limiting populations, habitat requirements for fisheries would not be met.

Current management of the Gallagher allotment and the unallotted Ney Ranch parcel is not a significant contributing factor of impacts associated with fish habitat within the Beaverhead River (1 & 2). Impacts such as unstable banks are a result of unnatural flow conditions, resulting from irrigation demands, from Clark Canyon Reservoir. On the Big Hole River (45-50), current management is meeting fish habitat requirements within the Rattlesnake and Bryan allotments. Low water flows during the summer are the primary source of concern for this segment of river.

On Divide Creek (42), in the Gallagher Mountain AMP allotment, some localized areas of bank alteration and some overwidening of the stream channel may be impacting fish habitat, but overall current management appears to be meeting fish habitat requirements as evidenced by high numbers of fish.

Also within the Gallagher Mountain AMP allotment, one of the tributaries to Sheep Creek (9) is meeting fish habitat requirements under current management, but reach 30, in the Flynn Draw allotment, is being impacted by livestock use. Current management is likely limiting the fish population due to degraded habitat conditions resulting from over-widening of the stream channel and areas of bank shearing.

Resource Concern #1: Special Status Species

Habitat capable of supporting populations of Bitterroot milkvetch and/or railhead milkvetch would be grazed prior to July 15 annually on the Browns Canyon, Burns Mountain, Rocky Hills, Anderson Field, Pipe Organ Rock, Henneberry Ridge Custodial, Grasshopper, and Rebich allotments. Repeated spring grazing could reduce adult plant vigor and lead to population declines, especially when plants occur on primary range.

The Gallagher, PHW, Red Spring, Timber Butte Isolated, Henneberry Ridge #2, Hildreth Individual and Barretts allotments are currently managed under rest-rotation or deferred use grazing strategies that limit spring grazing or grazing occurs only during the non-growing season. These grazing strategies would provide for the long-term maintenance of sagebrush steppe habitat that supports Bitterroot milkvetch and/or railhead milkvetch.

Livestock impacts including soil compaction and loss of vegetation noted around some spring sources would continue to reduce wetland function and soil-water storage capacity. Some streamside and wet meadow habitats would be subjected to heavy grazing under Alternative A potentially resulting in trampling and the browsing of inflorescences and fruits of sensitive plants. Continued heavy grazing of floodplains and wet meadow habitats, especially those supporting herbaceous plant communities, can cause abnormal hydrologic heaving. Aggravated hydrologic heaving alters the hydrology, energy flow and soil moisture regimes of these habitats and limits their ability to support rare native plants. Trampling by livestock and wildlife is contributing to abnormal hydrologic heaving and a disproportionate amount of bare ground within the wet meadow (70) associated with Eli Spring. Western yarrow, common dandelion and

Canada thistle were all observed in the wet meadow and are most likely competing with Rocky Mountain dandelion.

Riparian and upland sage grouse habitat conditions would not improve on the Rocky Hills, Red Mine, Scudder Creek AMP, PHW, and Anderson Field allotments. Lack of rest from current management may not provide for residual hiding cover adequate for successful nesting and brood rearing habitat in localized pastures surrounding leks.

The current grazing system on Farlin Creek (19 & 20) appears to be meeting WCT habitat requirements. There were, however, areas along the south fork of reach 20 where concerns were expressed regarding livestock impacts that may affect WCT habitat. There also appears to be a chronic source of sediment originating from granitic soils in the upper 1/3 of the drainage that is contributing to degraded habitat in the form of high sediment load and unstable banks in reach 20. When combined, these factors could cause degradation of WCT habitat below reach 20 and, if continued, habitat requirements for WCT may not be met within the drainage.

The fish population observed in the tributary to Sheep Creek, within the Gallagher Mountain AMP and Flynn Draw allotments, has not been identified by species. If they are found to be cutthroat trout, genetic samples would be collected and submitted for testing. Stream surveys are planned for 2008.

On the Holland-Carrol Isolated allotment, reaches 98 and 99 of Taylor Creek, are meeting WCT habitat requirements, but due to the headwater location, only provide limited seasonal use. On the Red Mine allotment, the habitat conditions on reach 44 of Taylor Creek are likely limiting WCT numbers. The over widened channel and sediment load, resulting from livestock trampling, are likely impacting spawning success in this reach of stream. Habitat conditions on reach 89 and 44 are being influenced by stream dewatering upstream from reach 89 on private lands resulting in low water conditions that are directly influencing the carrying capacity of WCT habitat downstream of the diversion.

Resource Concern #2: Recreational Opportunities and Public Access

Recreational opportunities and public access would remain essentially unchanged from the current situation.

Resource Concern #3: Socioeconomics

Under Alternative A, forage availability and the number of authorized AUMs is expected to continue at current levels and economic contributions attributed to livestock use of BLM-administered lands would continue at current levels. Livestock grazing on 90,076 acres of public lands would provide 13,490 AUM's of forage on 51 grazing allotments in Beaverhead and Madison Counties. The dependency of livestock operators on BLM forage would remain unchanged. BLM forage often provides a critical element of the livestock producer's matched complement of grazing, forage, and hay production. Since there would be no change in the authorized level of grazing use, this would not contribute to changing the real estate value of base properties. Without treatment, the economic value of the timber resource would be lost.

Socioeconomics was analyzed in further detail for the Field Office under Alternative A in Chapter 4 (p 316) of the Proposed Dillon RMP and Final EIS.

Critical Element: Areas of Critical Environmental Concern (ACECs)

The vegetative cover and species composition within the Beaverhead Rock ACEC would remain static or decline from present conditions.

Critical Element: Wilderness Characteristics

Under the No Action Alternative, the wilderness quality of naturalness would slowly be degraded as exotic and invasive species, primarily knapweed and cheatgrass, continued to spread within the Henneberry Ridge WSA. Riparian vegetation and associated habitat would also continue to be impacted in the area surrounding Canyon Spring and Rocky Point Spring where feral horses (herd removed in 1979), livestock, and wildlife use has caused the loss of native vegetation that probably includes some identified sensitive species found in other nearby riparian areas. These springs were both developed prior to the wilderness inventory, and the impacts to natural conditions and processes were documented at that time. The continued presence of these impacts would be considered to be non-impairing according to the policy's definition, and would be an allowable effect of the grandfathered grazing activities within the WSA.

4.2.3 Predicted Effects Common to All Action Alternatives

Issue #1: Upland Health, Sagebrush Steppe Habitat and Associated Species

Under current management, utilization of forage plants was generally found to be less than 50% on BLM-administered upland sites within the BWW. Implementing an annual utilization guideline of 50% utilization on cool-season bunch grasses, to help determine pasture moves, would enhance herbaceous plant community cover and composition. Earlier grazing treatments may allow sufficient time for plant re-growth while later deferred treatments may enhance seedling establishment and species composition. Utilization patterns within a pasture are not uniform and livestock-preferred areas would generally sustain higher levels of use while other areas may receive less utilization. Livestock distribution is influenced by distance from water, topography and season of use. Improvements in cover would improve infiltration, and reduce soil erosion, overland sediment transport, and sediment delivery to streams.

With the exception of the range improvement projects that would be removed, existing improvements would remain permanent features within the watershed. Modifications would be made to existing fences not meeting BLM specifications which are expected to reduce conflicts with wildlife movements and reduce mortalities. Modification of wildlife barrier fences would improve seasonal movements by elk, mule deer, moose and antelope in specific areas within the watershed, particularly for young of all species. Adjusting wire spacing, removing wires or providing gaps would allow animals to pass over or under these fences with a reduced risk of entanglement. New fences may impede wildlife movements, but constructing all new fences to BLM specifications would reduce entanglement hazards.

Water troughs, mineral placement, and trailing along fences would cause some localized impacts to vegetation but would be considered incidental. The proposed water developments are designed to improve livestock distribution and are expected to change utilization patterns so that more use would occur on upland forage plants and less in riparian areas. New livestock water

troughs may also provide increased water for wildlife if they are available when livestock are not present. Increased forage utilization can be expected within a ¼ mile of new water troughs due to concentrated livestock use within close proximity to these watering locations. New two-track ways may be created along the pipeline route. Use may be authorized on these routes only for administrative and maintenance purposes by permit holders and BLM employees.

Targeting new noxious weed infestations for eradication would keep new populations or new plant species from becoming established. Using biological control and/or aerial application on larger established infestations would reduce the size and density to more manageable levels. Conducting pre and post weed inventories within conifer treatment units would keep noxious weeds from being spread or established by these activities.

Herbaceous vegetation would increase within all conifer treatment areas. The BLM does not intend to increase authorized livestock use as a result of increased herbaceous vegetation. However, it is expected there would be increased ungulate use in the treated areas because of the improved accessibility and palatability of forage as well as production of herbaceous vegetation. This would change distribution and use patterns of herbivory (both wild and domestic) within the affected allotments for five or more years. There may be a short term increase in soil erosion within treated areas, but the long term effect would be decreased soil erosion due to increased cover of herbaceous vegetation.

Where conifer encroachment treatments utilizing prescribed fire are proposed, there would be a short-term loss of sagebrush habitats as sagebrush/forested areas are converted to grasslands. However, recovery of sagebrush would facilitate the BLM's goals and objectives of maintaining and improving sagebrush/grassland habitat. Based on past prescribed fires/wildfires in the area, it may take up to thirty years before sagebrush is reestablished at current levels and structure within the treated areas. Re-introducing natural disturbance regimes would provide for a diversity of successional and structural stages in sagebrush habitats.

Burning of slash materials may result in short term air quality deterioration. Prescribed burning is done in accordance with the MT/Dakotas Fire Management Plan and is coordinated with MT DEQ and the MT/ID Airshed Group. During prescribed fire season, the Smoke Monitoring Unit supports the Montana/Idaho Airshed Group to prevent/reduce the impact of smoke on area communities, especially when it could contribute to a violation of national air quality standards.

Issue #2: Riparian, Wetland, and Aquatic Habitat and Associated Species

Overall effects of livestock grazing on composition of vegetation due to dietary preference and selectivity of forage under action alternatives have been developed to address site specific objectives and are expected to be positive in relation to the No Action Alternative.

Revised grazing systems included in the action alternatives were generally developed in cooperation with the grazing permittees in order to increase support in implementation and success in meeting resource objectives. Ehrhart and Hansen (1997) selected 71 reaches on private land which were either functioning properly or functioning with problems, but exhibited an upward trend. Some general conclusions associated with successful management of riparian areas suggest that what operators do to encourage livestock not to loiter in the riparian zone is

more important than either season of use or length of time in the pasture. Ehrhart and Hansen (1998) acknowledge that there are “numerous techniques available for developing and implementing an appropriate prescription to address any given riparian ecosystem.” The only required ingredient which portends potential success was “serious commitment and personal involvement on the part of the operators and managers.” Alternatives developed in consultation with affected permittees have an improved chance for success.

Utilizing use guidelines as tools to indicate livestock movements should help improve overall watershed conditions along with the proposed management changes. This analysis is based on the assumption that these allowable use levels and associated livestock rotations are employed in a timely manner. Limiting use of upland forage to 50% during spring and summer treatments should benefit water infiltration, plant vigor, reduce soil loss through overland erosion and leave adequate residual cover and forage for wildlife. A 4” or 6” sedge stubble height guideline (as applicable) should benefit stream channel morphology by reducing impacts to streambanks and bank-holding riparian vegetation in most areas, but is not expected to initiate significant progress toward meeting PFC on its own. Clary and Leninger (2000) recommend a 4” residual stubble height as a starting point for improved riparian grazing management while acknowledging that 6” of stubble height may be required to reduce browsing of willows or limit trampling impacts to vulnerable streambanks. Excessive wetland hummocking and drying is expected to be reduced where wetlands are adjacent to streams. Improvements in stream channel morphology and reduced impacts to streamside wetlands would reduce sediment input associated with channel erosion.

Spring development plans include maintaining adequate flows for wetland hydrology. Fencing spring sources and associated wet meadows when developing water for livestock would benefit the spring’s ecological functions and processes, conserve habitat for rare plants in the vicinity of developed springs, and improve existing habitat for wildlife. Design features for spring developments listed in Section 2.3.3 would mitigate the potential of spring developments drying up or decreasing wetland areas associated with spring sources.

The construction of fences and water developments/exclosures throughout the BWW would facilitate better livestock control, distribution, and management. These improvements would also increase the level of human intrusion on the landscape and increase habitat fragmentation in specific areas. The greater intensity of human activity needed to meet guidelines or management strategies may increase potential wildlife disturbance or displacement on a localized and/or short term basis.

Water development in upland areas that lack water is often a key factor in reducing livestock concentrations in riparian areas. The proposed water developments would improve site conditions at spring sources by fencing the source and developing offsite water sources. Fencing the source would protect the associated habitat in the immediate vicinity. A common effect within riparian or spring exclosures in southwestern Montana is an increase in Canada thistle. New exclosures would need to be monitored for noxious weeds and treated where necessary.

The development of offsite water is expected to reduce trailing along streams and grazing/loitering in the riparian zone. Clawson (1993) found that installation of a water trough

reduced the duration of use of a perennial stream and also reduced the use of a spring in the same pasture. Cattle watered out of the trough 73.5% of the time, compared to only 3% from the stream and 23.5% from the spring. Reducing the duration of riparian area use would vary depending on water location and topography, but is expected to help increase composition of deep rooted riparian vegetation along the greenline and improve channel morphology.

Case studies, controlled experiments, and common experience all confirm that, unless discouraged from doing so, cattle tend to spend a disproportionate amount of time in the riparian portion of any pasture. Midsummer (hot season) grazing, second only to season-long grazing, is generally considered most injurious to riparian zones. Pastures can be grazed during this period successfully when the operator closely monitors the conditions, effective actions are taken to move livestock out of the riparian zone, and when there is an opportunity for regrowth (Ehrhart and Hansen 1998). Alternate sources of water appear to be an important tool to encourage livestock to move away from the riparian area". Alternative water provides cleaner water for livestock and releases pressure off streams and wetlands reducing waste inputs to streams, soil compaction, channel damage and grazing on riparian vegetation. The planned spring developments could de-water low flowing springs and decrease the available riparian habitat if no overflow is available to be returned back into the channel. Obtaining flow measurements prior to developing these springs would provide important feasibility data that would be used in the engineering design. Augmenting the water development with shade, such as placing the watering trough near existing juniper trees, would also help to reduce the time livestock spend in riparian areas (TR-1737-20, 2006).

Proposed water developments in the uplands have been designed primarily to reduce impacts to riparian areas, and would allow broader livestock distribution and more dispersed utilization on upland forage plants. Impacts associated with new water developments would include:

- Soil and vegetation disturbance during construction activities and increased utilization and disturbance within ¼-mile of the new watering locations.
- Loss of vegetation from concentrated livestock use in the immediate vicinity of the watering trough.
- Increased potential for invasive herbaceous plant species such as houndstongue, knapweed, or cheatgrass in the disturbed areas.
- New two-track ways, along the pipeline route. Use would be authorized on these routes for administrative and maintenance purposes by permit holders and BLM employees only.
- Distribution of use would be changed to more use of upland forage plants and less use of riparian vegetation.

Revised livestock management is predicted to improve riparian vegetation, stream channel morphology and sediment transport at varying degrees and timeframes. While different opinions exist within the scientific community regarding the best season of use, there is consensus that the length of time animals spend in a riparian area can be a significant factor in the condition of that area. According to Marlow and his colleagues (1991), "The most critical aspect in any grazing plan for the protection of riparian areas is the length of time cattle have access to a particular stream reach." After reviewing 34 allotments in southwestern Montana, Myers (1989) concluded, "duration in grazing treatments becomes a key factor in determining the severity of

damage”. Shortening the duration of treatments, providing or increasing rest or deferment, and/or constructing off-site water developments is expected to facilitate improvement of the vegetative component along the riparian areas. Stream channel morphology should also improve in most areas, albeit at a slower rate because physical changes require more time than vegetative changes. An upward trend in riparian vegetation vigor and streambank stability is expected on streams that were FAR or NF.

Forest health, prescribed fire, upland and riparian conifer treatments are limited in extent and are proposed only in Conover AMP, Gallagher (riparian juniper), Holland-Carrol Isolated, Krueger, Rebich#2, Rocky Hills, and Shale Creek allotments and the unallotted area in Small Horn Canyon. Changes in forest, upland and riparian structure would reduce snow and rainfall interception, and increase infiltration and runoff. According to Robichaud et al. (2006), “no measurable increase in runoff can be expected from thinning operations that remove less than 15 percent of the forest cover or in areas with less than 18 inches of annual precipitation”. Data from 95 watershed experiments conducted in the United States shows that, on average, streamflow increases by nearly 2.5 mm for each percent of watershed harvested (Troendle et al. 2006). Streamflow is quite variable and basal area change within affected watersheds is well below the threshold necessary to detect statistically significant change.

Removing juniper from riparian areas is expected to benefit sedges, willows, aspen, cottonwood and associated riparian species. Treatment of western juniper using chainsaws and/or herbicides in riparian zones in northeastern California and western Nevada was followed by “greater than expected” release of deep rooted herbaceous and deciduous woody vegetation within three years (Lancaster, pers. comm. 2007). Over the long term as sedges and woody species increase, channel morphology is also expected to improve. Soil disturbance during manual treatment of juniper may allow localized increases of cheatgrass or noxious weeds (e.g., houndstongue, Canada thistle).

Resource Concern #3: Socioeconomics

The economy in Beaverhead and Madison Counties is highly dependent on agriculture, primarily the livestock industry. The jobs and tax revenue generated by livestock associated activities plays a major role in fueling the economy of southwest Montana. The inter-mixed lands including private, BLM administered and State of Montana creates a woven ownership pattern on which many livestock producers have been dependant for decades to effectively run a livestock operation. Alternatives that the BLM Authorized Officer selects, including management changes, changes to grazing permit authorizations and structural projects to improve a resource concern often have a financial impact on the BLM grazing permittee and cumulatively on Beaverhead and Madison County’s economy. These impacts are considered and balanced with the alternative’s ability to effectively mitigate resource concerns and make progress towards meeting resource objectives.

A variety of projects are proposed on BLM-administered lands to improve land health. Table 4.1 summarizes the proposed projects on all BLM-administered grazing allotments by alternative. Alternative B proposes projects on 17 different grazing allotments and three unallotted tracts. Alternative C proposes projects on 11 allotments and one unallotted tract, while Alternative D proposes projects on 1 allotment.

Table 4.1. Summary of Proposed Projects on All Grazing Allotments by Alternative.

Proposed Project	Alternative B	Alternative C	Alternative D
New fence construction (miles)	3.6	2.85	0.25
Fence reconstruction (miles)	.1	1.5	0
Fence removal (miles)*	1.5	0	0
Riparian exclosure fences (linear miles)	2.1	2.1	1
New spring developments (# of developments)	2	0	0
New 1,000g troughs (# of troughs)	10	8	2
New wildlife guzzlers (# of guzzlers)	5	1	0
New stockwater pipelines (miles)	.85	.85	0
Reaches restored through vegetation treatments (# of reaches)	0	2	0
Springs reclaimed (# of springs)	1	2	0
Seeding projects maintained (acres)	Up to 600	0	0
Seeding projects restored (acres)	0	Up to 600	0
Redesignate roads (miles)	1	0	0
Commercial timber harvest (acres)	1675	0	0
Non-commercial mechanical or burns (acres)	1139	1179	0
Chemically treat cheatgrass (acres)	200	0	0
Chemically treat knapweed aerially (acres)	500	0	0
Treat riparian conifers (acres)	0	40	0

* Additional miles of fence would be removed to reduce wildlife barriers and entanglement hazards, but the extent of these projects has not yet been determined.

Critical Element # 2: Wilderness Characteristics

In all action alternatives, BLM will pursue an agreement with the USFS to develop an acceptable Wildland Fire Use Plan to restore a role for naturally ignited wildfires in the Farlin Creek WSA. Any efforts to restore a more natural role for fire in this WSA will enhance the wilderness characteristics by allowing natural processes to be the predominant influence on the landscape. This would also reduce or eliminate the possibility of incurring the impacts of fire suppression activities in the future within the WSA.

4.2.4 Predicted Effects of Each Action Alternative (B, C, and D) by Grazing Allotment

For each grazing allotment or unallotted parcel presented below, the predicted effects of each action alternative are presented for the issues in the following order and are arranged accordingly:

- Issue #1: Upland Health, Sagebrush Steppe Habitat and Associated Species
- Issue #2: Riparian, Wetland, and Aquatic Habitat and Associated Species
- Resource Concern #1: Special Status Species
- Resource Concern #2: Recreational Opportunities and Public Access
- Resource Concern #3: Socioeconomics
- Critical Element #1: Areas of Critical Environmental Concern (ACECs)

Headings are omitted under those allotments within which certain issues are not present, or are present, but not affected.

Wilderness Characteristics are discussed under the grazing allotment in which the WSA is located. The Farlin Creek WSA is located within the Farlin Creek #20191 grazing allotment, while the Henneberry Ridge WSA is located within the Rocky Hills #10148 grazing allotment.

Additional predicted site-specific effects of commercial timber harvest activities would be identified and analyzed in subsequent NEPA documentation prior to any commercial harvest activities.

Anderson Field #30026
Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Reducing the time cattle would spend in the Middle Chandler pasture to 45 days in the spring every 3rd year in combination with dormant season grazing the following year and complete rest the remaining year, would improve soil compaction conditions and reproductive capability of perennial plants. The 15-20 day shorter grazing period compared to past years would allow cool-season perennial grasses a portion of the growing season every year to replace roots, replenish carbohydrate reserves, set seed, improve annual biomass production and improve vigor. Piping overflow water from School Section Spring would better distribute cattle in portions of the uplands in the Northwest pasture.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

Evaluating, and if necessary repairing or possibly abandoning, any of the six spring developments in this allotment would help to sustain or improve the function of these wetlands. Annual maintenance on developed springs is aimed at maximizing flows for wetland hydrology, while still providing water for livestock. Constructing or maintaining fences around a spring source and associated wet meadow protects the spring source from compaction by animals while benefitting the spring's ecological functions and processes. A spring exclosure fence also conserves and/or improves habitat for rare plants and wildlife.

Special Status Species:

Bitterroot milkvetch populations would be subjected to spring grazing one year out of three. The proposed 3-treatment grazing rotation (May/June; Oct-February; Rest) should allow enough recruitment to maintain these populations. Shortening the growing season with the continued spring fall rest rotation would improve habitat conditions for sagebrush obligate species in the pastures where concerns were noted. The shortened 45 day grazing period should improve residual cover for nesting sage grouse. Treating invasive species at School Section Spring would improve biodiversity, but, piping water from School Section Spring could reduce the sage grouse brood rearing (riparian) habitat in this area, if flows do not persist.

Socioeconomics:

The proposed AUMs in this alternative are the same as in Alternative A. A small pipeline extension (<1 mile) is proposed for the Northwest Pasture.

Alternative C

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Reducing the time cattle would spend in the Middle Chandler pasture to 35 days in the spring every 3rd year in combination with dormant season grazing the following year and complete rest the remaining year, would reduce soil compaction and increase reproductive capability of perennial plants. The 20-25 day shorter grazing period compared to past years would allow cool-season perennial grasses a portion of the growing season every year to replace roots, replenish carbohydrate reserves, set seed, improve annual biomass production, and improve in vigor.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

Effects on developed springs would be the same as in Alternative B.

Special Status Species:

The long-term effects on population viability is expected to be the same as Alternative B, but shortening the spring grazing season should reduce livestock herbivory of Bitterroot milkvetch, which may allow for increased seed production one year out of three. Shortening the growing season to 35 days throughout the allotment with the continued spring fall rest rotation would improve habitat conditions for sagebrush obligate species in the pastures where concerns were noted and provide more residual nesting cover. Treating invasive species at School Section Spring would improve biodiversity, but piping water from School Section Spring could reduce the sage grouse brood rearing habitat if flows do not persist. Juniper removal would reduce competition and restore the shrub grassland habitat.

Socioeconomics:

Socioeconomic impacts would be the same as in Alternative B.

Antelope Butte #10118

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Authorizing livestock grazing between 9/1 and 12/31 is expected to improve the vigor, annual production, and reproductive capability of cool-season perennial plants in this allotment, by reducing the frequency of livestock herbivory during the growing season. This is ultimately expected to improve vegetative canopy cover and reduce soil erosion. Providing the flexibility to graze livestock between 4/15 and 6/15, every third year is not expected to hinder progress toward achieving Land Health Standards. Dormant season use would improve habitat conditions for all sagebrush/grassland obligate species and improve available prey base for raptors.

Socioeconomics:

Providing a fall/winter grazing season may enable the lessee to delay feeding harvested forage and reduce winter feeding costs.

Alternative C

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Grazing effects would be the same as in Alternative B. Construction of 1.5 miles of new fence would create an obstacle to wildlife passage, specifically antelope.

Socioeconomics:

Effects would be the same as in Alternative B, plus there would be some expense associated with constructing about 1.5 miles of 4-strand, barbed-wire fence.

Argenta Flats #10687

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

This alternative would allow the flexibility to graze horses, in conjunction with cattle, during the currently authorized season of use, without increasing the permitted AUMs. Authorizing grazing by horses may slightly shift grazing pressure from more level terrain, where slight declines in composition and vigor of cool-season grasses were noted, to ridge tops and slightly steeper slopes. Portions of the allotment on which grazing is permitted from 4/1 to 1/31 (same as Alternative A) are isolated parcels surrounded by deeded property and current management is expected to maintain the condition of those parcels.

Socioeconomics:

Authorizing the flexibility to graze horses, in addition to cattle, is not expected to have positive or negative economic impacts to the lessee. Disposing of the isolated parcel in the NE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 17, T7S, R9W, would result in a slight reduction in Federal AUMs, the number of which would be determined at a future date by assessing the carrying capacity of the parcel. If the parcel were exchanged for land that provides public access or wildlife habitat, the local communities may experience some economic benefits.

Alternative C

Upland Health, Sagebrush Steppe Habitat and Associated Species:

This alternative does not allow the flexibility to graze horses and shortens the grazing season by three months (10/1 to 3/31). Eliminating growing season use where concerns were identified would improve habitat conditions for sagebrush obligate species. Grazing during the dormant season is expected to improve the composition and vigor of cool-season grasses. Management of the isolated parcels would have the same effects as Alternative A.

Socioeconomics:

Shortening the grazing season may have some economic impacts to the lessee associated with feeding harvested forage or leasing private pasture. The economic impacts associated with disposing of the isolated parcel would be the same as in Alternative B.

Beaverhead Rock #20357

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Eliminating livestock grazing from this parcel would increase vegetative ground cover, improve the annual productivity and reproductive capability of cool-season grasses, and shift species composition toward late seral species. Construction of new fence on the BLM boundary would create an obstacle for wildlife movements. In turn, removal of the fence on top of Beaverhead rock would facilitate wildlife movements

Socioeconomics:

The 5 AUMs authorized on this allotment are not as economically important to the lessee as maintaining access to the water source on their deeded property. There would be some expense associated with constructing up to 0.75 miles of 4-strand, barbed-wire fence.

Areas of Critical Environmental Concern (ACECs):

This alternative would help protect the historic value of this ACEC by increasing vegetative ground cover and enabling species composition to progress toward a late-seral state, which may more closely resemble conditions found by Lewis and Clark.

Bell Ranch #20197

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Livestock grazing management is the same as Alternative A and is expected to continue meeting the Standards for Land Health within the allotment. Fence modifications to existing sheep fencing and removal of dilapidated fencing would reduce potential collisions and improve wildlife movements throughout the allotment and to adjoining allotments.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

Enlarging the enclosure at Albers Spring would reduce soil compaction and grazing pressure on vegetation. Over time hydrology would benefit as frost works to reverse soil compaction and promote soil aeration, which would enhance plant vigor.

B-Rock #20599

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Eliminating livestock grazing from this isolated parcel may only slightly improve the vegetative ground cover and species composition on this site, because of its low potential. Pursuing disposal of this parcel, would not adversely affect wildlife species, because it does not presently provide any habitat.

Socioeconomics:

Disposing of this isolated parcel is not expected to have any adverse socioeconomic impacts, but if the parcel were exchanged for land that provides public access or wildlife habitat, the local communities may experience some economic benefits.

Burns Mountain #10160

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Although this allotment met the Standards for Land Health, this alternative would change the grazing season from spring (5/1-5/31) to fall (10/1-11/30) and restore 23 AUMs that were previously suspended. Grazing during the dormant season is expected to further improve the vegetative cover, species composition, and vigor of cool-season grasses, as has been demonstrated on adjacent grazing allotments. Restoring the previously suspended AUMs would likely not effect on grazing distribution and utilization within this allotment, particularly during the proposed grazing season.

Special Status Species:

Changing the permitted grazing season from May to October and November would eliminate livestock herbivory of milkvetches during the growing season. This would also provide for the long-term maintenance of sagebrush steppe habitat that could support Bitterroot milkvetch and/or railhead milkvetch. Dormant season use would eliminate conflicts with sage grouse breeding and nesting season.

Socioeconomics:

Grazing livestock during the proposed grazing season may enable the lessee to delay feeding harvested forage and help reduce winter feeding costs. Restoring the 23 AUMs that were previously suspended may provide some slight economic benefit to the lessee.

Alternative C

Upland Health, Sagebrush Steppe Habitat and Associated Species:

The effects of livestock grazing management would be as described for Alternative B.

Special Status Species:

The effects on special status plants would be as described for Alternative B.

Socioeconomics:

The socioeconomic effects of grazing livestock during the proposed season would be as described for Alternative B.

Conover AMP #10117
Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

The effects of maintaining current livestock grazing management would be the same as Alternative A.

Reducing stand density in the proposed commercial harvest treatment would decrease intrastand competition and increase the availability of water and nutrients for the remaining trees, increasing residual stand vigor. Selective thinning and patch cutting with retention patches of uncut timber would increase structural diversity in the treated areas. Creating breaks in continuous stands would decrease the potential for widespread stand replacing wildfire and enhance suppression opportunities. Follow up prescribed fire treatments would reduce fuels and recycle nutrients from the mechanical treatments.

The removal of conifers from within and around aspen stands and the use of prescribed fire would revitalize these stands for a 20 to 50 year period. Ground based yarding would further enhance aspen regeneration response by disturbing the aspen root system and promoting sprouting. Helicopter yarding would have no additional beneficial effect upon aspen regeneration response except by removal of conifer competition.

Additional site-specific effects of commercial harvest activities would be identified and analyzed in subsequent NEPA documentation.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

Silvicultural prescriptions target harvest and removal of dead/dying trees, thinning of high density conifer stands, and harvest of conifers in and around aspen stands. Selective thinning and patch cutting as well as creation of breaks in continuous stands would minimize the potential for soil erosion. Water lost to transpiration and sublimation would more likely reach the soil surface and infiltrate. Following Streamside Management Zone requirements would mitigate riparian impacts.

Special Status Species:

Northern goshawk surveys would be completed prior to any commercial harvest treatments and proposed treatments would be designed to meet goshawk habitat requirements. Livestock depredations by wolves are expected to occur with the permitted sheep on this allotment. This is expected to become an increasing problem as wolves extend their range. This would most likely result in removal of offending wolves and would preclude packs from being established.

Socioeconomics:

Implementing the commercial harvest treatment would recover the economic value of the timber resource before it is lost due to mortality and decay.

Farlin Creek #20191
Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

The effects of maintaining current livestock grazing season would be the same as in Alternative A. Successfully constructing the two proposed projects would encourage somewhat greater utilization of the upland vegetation, but is expected to continue meeting the Upland Standard for Land Health and habitat requirements for sagebrush and forest dependant wildlife species.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

Successfully constructing the two proposed projects is expected to help improve livestock distribution by encouraging somewhat greater utilization of the uplands, and reducing loitering and utilization by livestock along Farlin (19 & 20) and Scudder Creeks (33). This alternative would slowly help improve streambank stability, enable the channel to narrow, and reduce lateral movement on Scudder Creek. It was unclear whether observed impacts to willow regeneration were due to livestock or wildlife, but adhering to the rest-rotation grazing system should help mitigate livestock impacts.

Special Status Species:

Development of a spring to provide offsite water would likely help reduce stream bank impacts related to livestock by reducing the amount of time spent in the riparian area. Installing a fish barrier, followed by an aggressive non-native eastern brook trout removal, would benefit the WCT in Farlin Creek by removing interspecies competition.

Socioeconomics:

There would be some expense associated with constructing the two proposed spring developments.

Wilderness Characteristics:

There would be no noticeable change to wilderness characteristics as a result of actions proposed in this alternative.

Flynn Draw #20535
Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Authorizing livestock grazing between 9/1 and 10/10 is expected to improve the vigor, annual production, and reproductive capability of cool-season perennial plants in this allotment, by reducing the frequency of livestock herbivory during the growing season. The flexibility to graze up to 200 cattle for not longer than 15 days is not expected to adversely impact upland vegetation within this allotment. Providing the flexibility to graze up to 65 cattle for not longer than 45 days between 6/15 and 10/10, every third year, is not expected adversely affect the vigor or productivity of upland vegetation.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

Limiting grazing to 15 days for two out of three years would benefit streams by limiting time cattle spend in the riparian area. Streambank shearing would be reduced, riparian vegetation would begin trapping sediments and building streambanks, and, over time, channel morphology would improve. A 45-day grazing period once every three years would be an improvement over current season-long grazing. Improvements to riparian health would also benefit fish habitat.

Special Status Species:

The population of trout in the tributary to Sheep Creek (31) in the Flynn Draw allotment has not been identified to species. If they are found to be cutthroat trout, genetic samples would be collected and submitted for testing. Stream surveys are planned for 2008.

Alternative C

Upland Health, Sagebrush Steppe Habitat and Associated Species:

The effects of livestock grazing under this alternative would be the same as for the fall-grazing treatment described under Alternative B.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

Limiting authorized grazing to 15 days is expected to help reduce streambank shearing and allow sedges to trap sediments and build streambanks, which over time would improve channel morphology. Improvements to riparian health would also benefit fish habitat.

Special Status Species:

The effects on special status species would be the same as in Alternative B.

Frying Pan #10131

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Grazing the North and South Gulch pastures between 3/15 and 5/31 would allow some grazing during the early growing season, but would provide an opportunity for cool-season grasses to grow after livestock are removed. Deferring use to fall in the Center and North pastures would improve the vigor and productivity of cool-season grasses, where concerns were identified, and improve habitat conditions for antelope and other sagebrush obligate species.

Special Status Species:

This allotment is not known to support much sage grouse use, but deferred use would improve overall habitat conditions for all sagebrush obligate species.

Socioeconomics:

Grazing livestock during the proposed grazing season may enable the lessee to delay feeding harvested forage and help reduce winter feeding costs.

Alternative C

Upland Health, Sagebrush Steppe Habitat and Associated Species:

The effects of grazing management would be the same as in Alternative B, except that flexibility would be allowed to graze the North and Center pastures between 3/15 and 5/31 during one year in a three-year period. Providing this flexibility is still expected to make progress toward meeting Upland Standard for Land Health, where concerns were identified. Because of the size of the North and Center pastures, it may also provide an opportunity to rest the North and South Gulch pastures. Construction of a wildlife guzzler would provide dependable season long water for wildlife. Deferring use in the Center and North pastures would improve herbaceous habitat.

Special Status Species:

The effects on special status species would be the same as in Alternative B.

Socioeconomics:

The socioeconomic effects of grazing livestock during the proposed season would be as described for Alternative B.

Gallagher #20114

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Livestock management in this alternative is the same as Alternative A with some minor corrections to the dates in the previous decision. This four-pasture rest-rotation system, with deferred use and/or rest in the remaining three pastures is expected to continue meeting the Upland Standard for Land Health. Treating up to 100 acres of cheatgrass and restoring native habitat would improve biodiversity.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

Providing rest every fourth year should help Bill Hill Creek to recover. As sedges, willows, and other riparian vegetation increase in density and vigor, they can trap sediments and build streambanks. Over the long term, improvements in channel morphology, including channel narrowing and widening of the riparian area may occur. Influencing livestock distribution by manipulating water availability would also benefit Bill Hill Creek.

Evaluating the spring developments in this allotment, and abandoning or repairing them as needed, would help maintain the hydrology, hydric soils, and hydrophytic vegetation within these wetlands. Maintenance of spring developments includes trying to maintaining adequate flows for wetland hydrology. Constructing or maintaining fences around spring sources and associated wet meadows would benefit the spring's ecological functions and processes, conserve habitat for rare plants in the vicinity of developed springs, and improve existing habitat for wildlife.

Removing junipers above Upper Bill Hill Spring and enlarging the existing enclosure would allow more sunlight, moisture and nutrients to be available to maintain hydrology, hydric soils

and hydric vegetation within this wetland resource. The effects to fisheries in the Beaverhead River would be the same as described in Alternative A.

Special Status Species:

The effects on special status plants would be as described in Alternative A.

Socioeconomics:

There would be socioeconomic impacts associated with reconstructing the dilapidated corrals, enlarging two livestock exclosures and constructing a third, redeveloping one spring and installing an additional trough on another, constructing about ¼-mile of electric fence, and spraying up to 100 acres of cheatgrass.

Alternative C

Upland Health, Sagebrush Steppe Habitat and Associated Species:

In addition to the rest and deferment in Alternative B, this alternative delays livestock grazing until 6/15, which would benefit cool-season grasses by enabling them to reach a more mature phenological stage before being grazed. This also reduces the time cattle spend in each rest-rotation pasture by about 6 days, as compared to Alternative B. Shortening this grazing period would reduce the opportunity for livestock to regaze plants that had already been defoliated and improve their vigor.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

The effects of this alternative are expected to be similar to Alternative B, except that the livestock would have about 6 fewer days to access the riparian areas. This should help reduce the livestock impacts that were observed along Bill Hill Creek (14) and its tributaries (35, 78, & 79), particularly during the hot season.

Reducing conifer density within reaches 25 and 26 of Gallagher Creek is expected to increase aspen, cottonwood, dogwood, sedges, and willows which are currently suppressed due to shade and competition for resources. These riparian species, in addition to providing habitat, trap sediments and assist in bank building. Gallagher Creek is susceptible to extremely high flows with a large natural bedload during rain on snow events. Given the natural variability of this stream, some improvement in channel morphology is expected. The effects to fisheries in the Beaverhead River would be the same as described in Alternative A.

Special Status Species:

The effects on special status plants would be as described in Alternative A.

Socioeconomics:

Socioeconomic impacts would generally be the same as in Alternative B, less the costs associated with treating 100 acres of cheatgrass. This alternative would, however, include costs associated with treating 40 acres of conifer encroachment along Gallagher Creek and any costs that the permittee would incur as a result of delaying turn out by two weeks.

Alternative D

Upland Health, Sagebrush Steppe Habitat and Associated Species:

This alternative reduces the authorized number of livestock by 35 head (134 AUMs), but maintains the grazing season, rest-rotation, and deferment found in Alternative B. This alternative is expected to continue meeting the Upland Standard for Land Health and should help improve any areas of concern.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

Although this alternative reduces the number of livestock authorized during the grazing season, it does not shorten the grazing season. This would likely result in slightly fewer cattle in the riparian areas for the same length of time as Alternative B, and therefore, would have effects similar to Alternative B. Impacts to riparian areas in general, and Upper Bill Hill Spring specifically, would be expected to improve slightly faster than under Alternative B. The effects to fisheries in the Beaverhead River would be the same as described in Alternative A.

Special Status Species:

The effects on special status plants would be as described for Alternative A.

Socioeconomics:

The socioeconomic impacts related to projects would be the same as in Alternative B, less the costs associated with treating 100 acres of cheatgrass. The permittee would likely incur costs resulting from the 35-head (134 AUM) reduction, such as locating alternate pasture or reducing herd size.

Gallagher Mtn. AMP #30013

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Maintaining current livestock grazing management is expected to continue meeting the Upland Standard for Land Health. Treating up to 100 acres of cheatgrass and restoring native habitat would improve biodiversity.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

Riparian conditions would remain the same as under current management.

Holland-Carrol Iso. #30618

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Continuing livestock management at the currently authorized levels is expected to continue meeting the Upland Standard for Land Health.

Salvage and sanitation harvest of lodgepole pine would reduce the occurrence of mountain pine beetle, dwarf mistletoe, and Comandra blister rust. When a new cohort of lodgepole pine trees becomes established in these openings, it would form a new age class that would not be

susceptible to mountain pine beetle for the next 40 to 80 years. Removing trees infested with dwarf mistletoe and Comandra blister rust would also reduce the potential spread of these damage agents. Follow up prescribed fire treatments would reduce fuels and recycle nutrients from the mechanical treatments. Additional site-specific effects of commercial harvest activities would be identified and analyzed in subsequent NEPA documentation. Displacement of wildlife is expected to occur during the timber harvest operations. Wildlife habitat would be enhanced by creating more edge and forage, at the same time security cover would be reduced for elk and deer in the short term. The proposed 40-acre prescribed fire would improve forage conditions for big game in the short term, on a small scale.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

Removing the dilapidated fence would eliminate a barrier that, in conjunction with topographic features, discourage livestock from leaving reach 89 and facilitate them returning to the adjacent private pasture. This is expected to reduce streambank shearing and hummocking on this reach.

Forest Health and prescribed fire treatments should result in more precipitation reaching the soil and infiltrating. Changes in the water budget relative to runoff and erosion are not expected. Streamside Management Zone requirements will be followed, therefore no impacts to riparian are expected.

Special Status Species:

The effects to WCT would be the same as described for Taylor Creek in Alternative A. Northern Goshawk inventories would be conducted prior to any timber harvest and treatments would be designed to meet habitat requirements if goshawks are found. Treated stands would improve foraging quality for goshawks.

Socioeconomics:

Implementing the commercial harvest treatment would recover the economic value of the timber resource before it is lost due to mortality and decay.

Alternative C

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Livestock management would have the same effects as Alternative B. Forage conditions for big game would be improved in the short term, on a small scale with the proposed 40-acre prescribed fire.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

Reconstructing the dilapidated fence would reduce livestock impacts on reach 89, but would create an additional wildlife obstacle. Effects of prescribed fire treatments would be as described in Alternative B

Special Status Species:

The effects to WCT would be the same as described for Taylor Creek in Alternative A.

Socioeconomics:

There would be costs associated with constructing up to 0.75 miles of four-strand, barbed-wire fence with jacks and rails through wetland areas.

Kennison Spring #20182

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

This alternative would authorize livestock grazing one month earlier than under Alternative A, but would shorten the season from five months to three months and is expected to continue meeting the Upland Standard for Land Health. Removing livestock by 11/30 would eliminate social displacement that might occur between livestock and big game on winter/spring range. Dormant season use with rest one in four years would maintain the current conditions that appear to be providing sufficient winter foraging habitat for big game. Construction of a wildlife guzzler would provide dependable season long water for wildlife. Fence modifications between Kennison spring allotment and Bell Ranch would improve wildlife passage and reduce mortality and entanglement hazards.

Krueger Creek #10139

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

The effects of continuing current livestock grazing management would be the same as Alternative A. The 20 acre prescribed burn would improve foraging conditions for wild ungulates in the short term but on a small scale. Current management is compatible with winter big game use.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

Prescribed fire treatments should result in more precipitation reaching the soil and infiltrating. While groundwater recharge would benefit, changes in the water budget relative to runoff and erosion are not expected. No measurable impacts to riparian are expected.

Meine Cow Camp #20113

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

The grazing season in this alternative is two months longer than under Alternative A, does not increase the authorized AUMs, and would still occur between seedset and the beginning of the next growing season. Authorizing some horses, in lieu of cattle, would likely shift grazing distribution toward the ridge top, but because of the dormant season use and the limited availability of water, very little change is expected. Since AUM's would remain the same it is not expected to impact the existing habitat conditions and should continue to meet the Upland Standard for Land Health.

Socioeconomics:

There would be some costs associated with developing a water source on deeded ground and piping water onto public land.

Alternative C

Upland Health, Sagebrush Steppe Habitat and Associated Species:

This alternative maintains the same grazing season as under Alternative A, but authorizes horses in addition to cattle, without increasing the authorized AUMs. The effects would be the same as in Alternative B.

Socioeconomics:

The socioeconomic impacts would be the same as in Alternative B.

PHW #30031

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Dividing the Three Deer pasture into two pastures and creating a riparian pasture with a portion of the Bachelor Mountain Pasture, would allow a revised grazing rotation to include rest in both seeding pastures once every three years. The remaining two years, both seeding pastures would be grazed for about 10 days and then rested for the remainder of the year, which should improve vigor, annual production and reduce bare ground amounts. This would also improve big game winter range.

To further disperse cattle and improve sagebrush steppe habitat in the southeast corner of the Bachelor Mountain Pasture, a 1.5 mile pipeline extension is proposed with one trough on BLM-administered land.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

Dividing the Three Deer pasture into two pastures and creating a riparian pasture with a portion of the Bachelor Mountain Pasture would allow a revised grazing rotation to include rest in all pastures with stream reaches every 3-4 years. The proposed riparian pasture, which would include Watson Creek (reaches 34 and 61), would be rested 2 out of every 3 years with a quick (<6 day) grazing period during the grazing year. Authorizing only a six-day grazing period, one year in three, in the riparian pasture is expected to mitigate the effects associated with hot season livestock grazing on Watson Creek.

The development of additional pastures would result in shorter grazing periods in each pasture and more frequent rest. The IDT noted Watson Creek and the South Fork of Watson Creek (reaches 38 and 61) had excessive hummocking, a lack of a defined channel, poor willow recruitment, entrenchment and/or lack of a diversity of willow age classes. These management changes and structural projects are expected to mitigate these resource concerns.

Special Status Species:

The effects on special status plants would be similar to those described for Alternative A. Locating a water trough in section 12 would convert secondary range to primary range. If the new trough is turned on and the water trough in section 11 is turned off when the Bachelor Mountain pasture is grazed in the spring, grazing pressure would be reduced on the largest concentration of Bitterroot milkvetch in the pasture and may allow for population expansion. Sage grouse and pygmy rabbit habitat would be improved by adding more rest within the allotment. Deferring use in the North and South Cross pastures would minimize disturbance during sage grouse nesting. Construction of the riparian pasture in the Three Deer pasture would improve sage grouse brood rearing habitat but would increase the risk of wildlife collisions and entanglement for big game and avian species.

Socioeconomics:

Proposed projects would include installing two miles of 4-strand barbed wire fence, adding 1.5 miles of new line and installing one trough to an existing pipeline on the allotment.

Alternative C

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Dividing the Three Deer pasture into two pastures and creating a riparian pasture with a portion of the Bachelor Mountain Pasture would allow a revised grazing rotation to include rest in both the North and South seeding pastures once every three years. The remaining two years, both seeding pastures, which are primarily uplands, would be grazed for 7-10 days and then rested for the remainder of the year. These management changes should improve vigor, increase annual production, and reduce bare ground amounts. Incorporating more rest would provide improved big game winter range; Construction of new fence would increase the risk of wildlife collisions and mortalities for big game and avian species.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

Effects would be the same as in Alternative B.

Special Status Species:

The effects on special status plants would be the same as discussed for Alternative B. Sage grouse and pygmy rabbit habitat would be improved by adding more rest (once in 3-4 years) in all pastures on the allotment. Deferring use in the North and South Cross pastures would minimize disturbance during sage grouse nesting. Construction of the riparian pasture in the three deer pasture would improve sage grouse brood rearing habitat. Bachelor Mountain would only be used 2 in ten years prior to June 8 and South Cross pasture 1 in 10 years prior to June 24, and North Cross deferred until June every year. The deferment along with the rest would be beneficial in providing residual hiding cover for sage grouse nesting and brood rearing and increased prey base for raptors.

Socioeconomics:

Effects would be the same as in Alternative B.

Polaris #20186

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

This alternative authorizes horses, in addition to cattle, without increasing the permitted AUMs. Authorizing grazing by horses is expected to continue meeting Upland Standards for Land Health on this allotment.

Rattlesnake #10510

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Limiting livestock grazing to a 14-day period (seven days in each pasture) during the early growing season would reduce the ability of livestock to graze regrowth on previously grazed plants and allow vegetation sufficient time to regain vigor through the rest of the growing season. The short season of use would allow for herbaceous re-growth and improve wildlife habitat conditions throughout the allotment.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

Current livestock grazing is not negatively impacting the Big Hole River reaches which bound the allotment to the north. There would be no impacts to fisheries habitat.

Socioeconomics:

The socioeconomic impacts would be the same as under Alternative A, since this adjustment would be within the currently authorized dates and more closely resembles the present management.

Areas of Critical Environmental Concern (ACECs):

This alternative would not have any effects on the geologic values associated with the Block Mountain ACEC.

Alternative C

Upland Health, Sagebrush Steppe Habitat and Associated Species:

This alternative would limit livestock grazing to a 7-day period during the early growing season, which would provide the same post-grazing season recovery period as Alternative B, and rest the grazed pasture the following year. Although grazing would occur early in the growing season, including rest is expected to improve the vigor, productivity, and reproductive potential of the cool-season grasses and improve ground cover. Alternating rest would provide for improved mule deer winter habitat and allow the uplands to recover more quickly than alternative B.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

Effects would be as described in B. Seven days use every other year would not result in noticeable impacts. There would be no impacts to fisheries habitat.

Socioeconomics:

Under this alternative, the permittee would incur costs associated with feeding harvested forage for an additional week or finding alternate pasture.

Areas of Critical Environmental Concern (ACECs):

Effects would be the same as Alternative B.

Rebich #2 #20184

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Effects of the proposed commercial harvest treatment would be the same as described above under the Conover AMP Allotment.

Special Status Species:

Northern Goshawk inventories would be conducted prior to any timber harvest and treatments would be designed to meet habitat needs if goshawks are found. Treated stands would improve foraging quality for goshawks.

Socioeconomics:

Implementing the commercial harvest treatment would recover the economic value of the timber resource before it is lost due to mortality and decay.

Red Mine #30034

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Adhering to the current grazing rotation is expected to continue meeting the Upland Standard for Land Health. Installing new troughs and maintaining existing troughs to which water could be hauled would result in localized areas of disturbance, but because of the existing grazing rotation, would not adversely affect upland vegetative communities. Constructing new fences would increase the risk of wildlife collisions and entanglement for antelope and avian species.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

Constructing a riparian exclosure around the wet meadow (56) would benefit the hydric soils, hydric vegetation and overall hydrology of this wetland. Evaluating Road Spring (#474806), a dugout spring and, if necessary, constructing an exclosure would mitigate any resource concerns at this spring.

Fencing Taylor Creek (44) would benefit riparian species. As sedges, willows, and other riparian vegetation increase in density and vigor, they can trap sediments and build streambanks. Over the long term, improvements in channel morphology, including channel narrowing and widening of the riparian area would occur. Depending upon the level of use by wildlife, aspen may also increase. A hardened water gap, properly installed so as to minimize impacts, would provide access to water for livestock and at the same time minimize impacts to channel morphology.

Providing offsite water is expected to reduce the amount of time livestock spend on Taylor Creek which would reduce trailing and trampling impacts to the stream banks resulting in improved fish habitat.

Special Status Species:

The proposed grazing strategy for pastures 2 and 3 should provide enough rest and deferment to maintain the small population of Idaho sedge along Taylor Creek. Wet meadow 56 doesn't currently support a known population of sensitive plants, but it could provide habitat for Idaho sedge, Rocky Mountain dandelion or slender thelypody. The anticipated improvements in habitat conditions inside the proposed enclosure would be conducive to supporting these species.

The riparian enclosure would provide improved brood rearing habitat conditions for sage grouse. Installing new water troughs would create localized site disturbance in sagebrush habitat, but would distribute livestock to improve overall conditions throughout the allotment for sage grouse and pygmy rabbits.

Socioeconomics:

Socioeconomic impacts would include those costs associated with installing up to 6 water troughs and constructing up to 1-mile of fence. The permittee would incur the costs of hauling water to the troughs, but this may be mitigated by providing more reliable pasture.

Alternative C

Upland Health, Sagebrush Steppe Habitat and Associated Species:

The effects of continuing the current grazing rotation and providing off-site water via pipelines, instead of hauling water, would be the same as Alternative B. Initially, there may be greater disturbance associated with constructing the pipeline, but there would be little difference following rehabilitation.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

The effects would be the same as in Alternative B.

Special Status Species:

The effects on special status plants would be the same as discussed for Alternative B. Impacts would be similar to Alternative B with the exception of improving brood rearing habitat for sage grouse, since there would be no riparian enclosure around the wetland at reach 56.

Socioeconomics:

Socioeconomic impacts would include those costs associated with constructing up to a 1-mile pipeline, installing up to 4 water troughs, and constructing up to 1-mile of fence.

Red Spring #10120

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Installation of wildlife guzzlers would provide dependable water sources for wildlife throughout the allotment.

Special Status Species:

The effects on special status plants would be the same as discussed for Alternative A.

Effects would be the same as Alternative A, with the exception of increased water availability for all wildlife.

Reservoir Creek AMP #30030

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Opening the road on the north side of the allotment during a time when the road is usually muddy would result in increased disturbance which would increase the chance of invasion of the area by noxious weeds.

Special Status Species:

Vehicles traveling the road to access the sage grouse lek would pass within ½ mile of a population of silver chicken sage. Opening up this travel route would create a loop route from the Reservoir Creek road back to the Bannack Bench county road that would pass through a portion of this of this population. The potential for increased traffic and disturbance along these vehicle routes would increase the chance of invasion by noxious weeds as mentioned above.

There would be an increase in disturbance to sage grouse during the breeding season with increased public traffic, acknowledging that the lekking area moves some from year to year. There is potential for the public to drive right into the lek. The road closure was designed to keep the public at a vigilant distance for observation. If the restrictions are adhered to, disturbance would be kept to a minimum.

Recreation Opportunities and Public Access:

The proposal to open approximately one mile of road would potentially provide an additional opportunity for the public to view wildlife, the opportunity would be limited to a time of year when snow on the road is likely to limit public access opportunities, and when combined with seasonal precipitation, the motorized travel is likely to create rutting and multiple routes when travelers attempt to access the lek by avoiding drifted snow and/or deep ruts on the existing road surface. As with most recreational wildlife viewing areas, the public's opportunity to actually see wildlife at the identified location would vary from year to year depending on the movement of the wildlife.



Figure 4.1: The access road to the Reservoir Creek Sage Grouse lek proposed to be open to motorized vehicle use during the month of April. BLM photo taken April 10, 2008.

Rocky Hills #10148

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Incorporating a moderately short growing season period (<25 days) on Grasshopper and Madigan pastures, reducing total grazing days on Brown's Spring pasture to <6 days and resting the Windmill East and Windmill West pastures every other year would mitigate the decline in canopy cover and composition in bluebunch wheatgrass and the reduction in annual production found in the Brown's Spring and Windmill East Pasture.

Aerially-applied chemical treatment of spotted knapweed would reduce its competitive advantage and give the native forbs and grasses a chance to repopulate the area. The reduction in the density of the knapweed populations with aerial treatment would allow for control by less aggressive means such as backpack or ATV spraying. Treatment of noxious weeds and conducting prescribed burns would improve the biodiversity throughout the allotment. The prescribed burns would improve wild ungulate forage in the short term and increase the edge effect for all sagebrush obligate species.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

A grazing management plan that would reduce the grazing period to <6 days in the Brown's Spring pasture coupled with reduced trailing along Cedar Creek (reach 96) has the potential to improve the short stretch of Cedar Creek. However, due to the small length of the reach (<100 yards) and the location of the resource degradation, it would be difficult to eliminate impacts to Cedar Creek. Progress would be monitored after 3-5 years to see if an exclosure fence is needed to protect the resource.

The Rocky Point Spring source and small area of riparian habitat above the spring source would be protected from livestock trampling and herbivory allowing the existing vegetation to increase inside the enclosure.

Restoring natural free-flowing water to the Canyon Spring drainage and protecting the source and nearly 1000 feet of spring brook from livestock impacts would allow for natural recovery of aquatic and riparian habitats and would provide the best opportunity for reestablishment of native obligate and facultative wetland species. The spring brook would begin to stabilize and reestablish its natural channel shape and sinuosity inside the enclosure. Livestock trampling and herbivory would also be eliminated along the 500' of the Canyon Spring tributary riparian habitat. The existing vegetation would increase in both vigor and density inside the enclosure. Over time, the vegetative communities and stream channel morphology would progress toward site potential inside the enclosure.

Evaluating the four spring developments on BLM-administered land in this allotment, and repairing or abandoning them as needed, may help to sustain or improve the function of these wetlands. Annual maintenance on developed springs is aimed at maximizing flows for wetland hydrology while still providing water for livestock. Constructing or maintaining fences around the spring source and associated wet meadow would protect the spring source from soil compaction by larger animals while benefitting the spring's ecological functions and processes. A livestock enclosure fence also conserves and/or improves habitat for rare plants and wildlife by protecting vegetation from repeated herbivory and animal hoof action.

Special Status Species:

Aerially treating 500 acres of spotted knapweed near Grasshopper Creek would improve habitat conditions for Bitterroot milkvetch, railhead milkvetch, taper-tip desert-parsley and buff fleabane. Locating and marking any sensitive plants within the proposed treatment areas prior to herbicide application would reduce the chance of inadvertently spraying any sensitive plant species.

Repeated spring grazing in the Browns Spring and Grasshopper Pastures could reduce adult plant vigor and lead to population declines of Bitterroot milkvetch.

Neither of the spring brooks associated with Canyon Spring and Rocky Point Spring currently supports known populations of sensitive plants, but they could provide habitat for Idaho sedge, Rocky Mountain dandelion, slender thelypody and possibly mealy primrose and meadow lousewort. The anticipated improvements in habitat conditions inside the proposed enclosure would be conducive to supporting these species.

The impacts expected from allowing up to 986 yearling cattle to access Cedar Creek for up to 6 days annually may limit riparian recovery along stream reach 96 which may not provide for habitat for the sensitive plant species known from riparian and wetland habitats in the surrounding area.

Resting the Windmill West and East pastures on rotating years would improve sagebrush habitat while constructing a livestock enclosure on Canyon Spring would improve sage grouse brood rearing habitat since water and riparian habitat are scarce in this area.

Socioeconomics:

Some additional management would be needed under this alternative to change the course of trailing away from Cedar Creek (96). There would be no change in AUMs under this alternative.

Wilderness Characteristics:

Projects proposed within Alternative B that fall within the Henneberry Ridge WSA include approximately 50 acres of a 400 acre prescribed fire, approximately 500 acres of aerial treatment for knapweed, and a riparian livestock enclosure.

The prescribed fire, all or most of which would occur outside the WSA, is proposed to restore the fire-dependent sagebrush-steppe ecosystem which is being replaced by conifer encroachment due to the exclusion of fire caused in large part by grazing livestock eliminating the fine fuels that would naturally carry fires into the timber. In addition, fire suppression in the area has further reduced the spread of naturally-ignited wildfires in this area, allowing timber to spread without the benefit of natural fire disturbances. This project is consistent with management of the area according to the IMP, which states, "Prescribed burning may be used where necessary to maintain fire-dependent natural ecosystems." (IMP, p. 39) The proposed prescribed fire within this alternative would help restore the fire-dependent natural ecosystem to this area.

The aerial treatment for knapweed would cause a very short-term disturbance to wilderness qualities for any recreational visitors who happen to be in the area at the time of the treatment. Primitive recreational opportunities would be adversely affected by the noise and visual impact of the helicopter activity during the treatment. In the long term, the reduction or eradication of knapweed would allow recolonization of the infested area with native vegetation, enhancing the naturalness, and encouraging more natural processes to take place within the WSA. This project is consistent with the IMP, which states, "Noxious weeds may be controlled by grubbing or with chemicals when they threaten lands outside the WSA or are spreading within the WSA, provided the control can be affected without serious adverse impacts on wilderness values." (IMP, p. 39)

The proposal to construct a riparian livestock enclosure around Canyon Spring and associated riparian and wetland habitat would create a new man-made intrusion in the WSA, causing the "imprint of man" to be more noticeable over a greater portion of the WSA. Location of pipelines and livestock troughs on the benches below the watered reach would make the visual evidence of this livestock development more noticeable. New disturbance caused by livestock trampling around the newly located troughs would be noticeable, unless it was topographically screened from the visitor's view. Enclosure fencing would be along ridgelines, at least in some places, which would be noticeable from greater distances surrounding the spring than the current spring development and stock tank. From a purely visual perspective, this alternative creates an impairment of the existing wilderness values.

However, by excluding livestock from the spring source and associated wetlands, the native riparian vegetation is expected to be restored, and could possibly restore sensitive plant species

known to occur in similar habitats in this area. It would provide an opportunity for improvement of the natural ecological condition of the vegetation and provide site-specific benefits to the natural diversity of the vegetation and wildlife, enhancing the opportunity for natural processes to be improved in the area. This project would eliminate livestock impacts at the spring source and along the entire associated wetland, but would create new livestock impacts on the upland benches below the riparian reaches as well as new visual impacts that would be apparent over a larger area than the existing project.

This alternative causes greater impacts on the natural appearance of the area; however, it provides important benefits to the natural processes of the area by protecting and restoring native vegetation, sensitive species, and associated wildlife uses and interactions. It restores a relatively rare wetland habitat in this area at the expense of another more common feature of the WSA (sagebrush upland). This project would most likely be consistent with management of the area according to the IMP.

The proposal to construct a livestock enclosure around spring source at Rocky Point Spring would impact the naturalness of this area by introducing another man-made feature within the WSA. However, it would provide protection to the spring source and associated riparian vegetation, promoting the return of native vegetation, wildlife, and associated natural processes.

Alternative C

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Incorporating alternating rest on all pastures in the allotment would mitigate the decline in canopy cover and composition in bluebunch wheatgrass and a reduction in annual production, reproductive capability and litter in the Brown's Spring Pasture and Windmill East Pasture. In both of these pastures, the grazing period would be limited to ten days every other year. The rest provided in the grazing rotation would allow native cool-season plants the opportunity to complete their life cycle without being grazed by livestock every other year.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

Removing the headbox at the Rocky Point Spring source and protecting the spring source and "downstream" wet meadow habitat with jack and rail fence may allow for reestablishment of a spring brook. The effects on riparian and wetland habitat in the Canyon Spring drainage would be the same as discussed for Alternative B.

A riparian enclosure fence would be constructed with a small livestock watering gap to mitigate riparian concerns on Cedar Creek (96).

Evaluating the four spring developments on BLM-administered land in this allotment, and repairing or abandoning them as needed, would have the same effects as in Alternative B.

Special Status Species:

Resting habitat supporting Bitterroot milkvetch every other year should allow enough recruitment to maintain these populations.

The anticipated improvements in habitat conditions inside the proposed enclosure on Cedar Creek (96) would provide an opportunity for reestablishment of native obligate and facultative wetland species including sensitive species known from the surrounding area.

The effects on special status plant habitat in the Canyon Spring drainage would be the same as discussed for Alternative B.

Incorporating rest into all pastures within the allotment would be ideal to improve overall conditions for sage grouse and pygmy rabbit habitat. The rest rotation coupled with the enclosures would be beneficial to sage grouse brood rearing.

Socioeconomics:

The rest-rotation grazing systems proposed would result in fewer pastures to be grazed each year and might result in a reduction of AUMs. This proposal would construct about one mile of enclosure fence on or along the drainages of Rocky Point and Canyon Spring. The project would also include moving the location of two troughs about 1000' east. On Cedar Creek (96), the proposed enclosure fence would be a minor cost due to the small length (<75 yards).

Wilderness Characteristics:

Projects proposed under Alternative C provide the greatest benefits to wilderness values in the Henneberry Ridge WSA. Alternative C calls for "...removing the spring boxes, pipelines and tanks associated with existing spring developments..." at Canyon Spring and Rocky Point Spring. It also proposes to protect the reclaimed spring sources and at least 1000 feet of associated spring brooks... from livestock impacts and allow for natural recovery of aquatic and riparian habitats." Because the enclosure around Canyon Spring would be located outside the drainages in many places, it would be more visible to recreational users of the area than the existing development, and would impact their opportunity for a "wilderness experience" by expanding the imprint of man. However in this alternative, this imprint would be limited to less than ¾ mile of barbed wire fence with no additional impacts from relocated stock water tanks and associated livestock trampling.

The stated purpose of these projects would be to restore "natural free-flowing water" to the drainages of Canyon and Rocky Point Spring. The removal of the spring developments would enhance wilderness values by eliminating impacts of man, and the restoration of natural free-flowing water and the protection of these spring sources and associated aquatic and riparian habitats would enhance the natural processes in the area. Although the visual impact of this fence would be noticeable for some distance around the spring sources, it would restore a rare feature of the WSA by protecting one of the only reliable spring sources and its associated habitats and natural processes. This alternative benefits the wilderness values in the area by providing the best option for restoring natural processes and eliminating many of the imprints of man's work (e.g. water tanks, spring boxes, pipelines), while requiring minimal new development in order to better protect the habitats and promote the restoration of natural processes.

Scudder Creek AMP #30028

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Maintaining the seeding project with introduced species would restore the herbaceous component to the vegetative community. Alternating spring and fall use would improve herbaceous conditions, maintain AUMs for livestock, and improve cover and forage for wildlife. Seeding with introduced species would not restore natural local upland health conditions, but introduced species may fill the same functional/structural niches as native species. Seeding with a seed mix of introduced species has a highest chance of seeding success because of the broad germination requirements and high establishment success of these species.

Special Status Species:

Seeding with a mix of non-native introduced species and alternating spring fall use would improve residual herbaceous cover for screening sage grouse, but does not restore the natural habitat type.

Socioeconomics:

Under this alternative, there would not be a reduction of AUMs, but there would be considerable expense associated with maintaining the seeding project with introduced grasses and forbs. There may also be costs to the permittee associated with leasing pasture during the two years of rest following the seeding.

Alternative C

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Incorporating rest one in every three years with an alternating spring, fall rotation along with seeding a mix of native seed may restore the ecological function and habitat in the allotment, improve habitat for wintering big game use, and maintain livestock AUMs. Seeding with a native seed mix poses a higher risk for failed seeding because native seed generally has narrow germination and establishment requirements, especially in areas of less than 12" of rainfall per year.

Special Status Species:

If successful, seeding with a mix of native seed would restore the ecological function and habitat along with alternating spring, fall rotation and incorporating rest one in three years, would improve overall habitat conditions for sagebrush obligate species and improve sage grouse nesting habitat.

Socioeconomics:

This alternative would authorize full AUMs every third year. In the other two years, the authorized AUMs would be about half, because only one season of use is authorized. This would require the permittee to arrange for leased pasture outside of the authorized seasons and during the two years of rest, which may have economic consequences. This alternative would also be the most expensive to implement, because of the high cost of native seed.

Alternative D

Upland Health, Sagebrush Steppe Habitat and Associated Species:

The deferred use authorized under this alternative would enable the remaining native and introduced grasses and forbs to regain vigor and reproductive potential by eliminating grazing during the growing season and until after seedset. Reestablishment of herbaceous species would not be as fast as in Alternatives B and C.

Special Status Species:

Dormant season use would improve the composition and cover of herbaceous species and would help to progress towards a shift in native species without seeding, depending on the desirable seed source in the area. This would improve sage grouse habitat over the current annual spring use.

Socioeconomics:

This alternative would require the permittee to make arrangements for spring pasture, but would provide all of the active AUMs in the fall. There would not be any project expenses associated with this alternative.

West Big Hole Road # 10503

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

This alternative contains alternating rest, as in Alternative A, but authorizes livestock grazing beginning prior to the growing season and ending two weeks earlier than in Alternative A. This would provide several weeks of post-grazing growing season and improved habitat conditions. It is expected that the Upland Standards for Land Health would continue to be met on this allotment. Installation of a wildlife guzzler would provide for dependable wildlife water and removing the dysfunctional fences would eliminate an entanglement hazard for wildlife.

Recreational Opportunities and Public Access:

Removing approximately 1 mile of fence within this area would improve public recreation opportunities by eliminating an obstacle to hunters or other recreationists in the area, especially horseback riders.

Socioeconomics:

Some expense would be associated with installing wildlife guzzlers and removing the dysfunctional fence.

Unallotted – Eli Springs

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Maintaining the existing fences and limiting livestock use to the trailing permit would maintain or improve sagebrush habitat for all sagebrush obligate species and improve winter big game habitat.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

Hydric soils, hydric vegetation and hydrology in general would benefit under this alternative.

Special Status Species:

Maintaining or reconstructing the fence around Eli Springs would prevent livestock on the adjacent allotment from inadvertently entering the area. Replacing the existing wire gates with 16 ft. metal gates would improve the chances that individuals traveling the designated routes through the area would close the gates. A tight fence and closed gates would decrease the opportunity for unauthorized livestock to impact wetland habitat occupied by Rocky Mountain dandelion and would enhance sage grouse nesting and brood rearing habitat.

Recreational Opportunities and Public Access:

Replacing wire gates with 16 ft. metal gates at three locations on designated routes would improve public access and recreational opportunities by making it easier for the public recreation visitor to travel on open motorized routes while complying with the need to keep gates closed. Wire gates are often difficult for people to open and close, and the metal gates would simplify their effort.

Socioeconomics:

Socioeconomic costs would be incurred for the metal gates and all supplies to repair the fence around the parcel.

Alternative C

Upland Health, Sagebrush Steppe Habitat and Associated Species:

The effects would be the same as in Alternative B.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

The effects would be the same as in Alternative B.

Special Status Species:

The benefits of a tight, functional fence would be as described under Alternative B.

Replacing the existing wire gates with cattle guards would ensure unauthorized livestock wouldn't enter the area from the designated vehicle travel routes. Constructing two new wire gates in the northwest and southwest corners of the new fence would provide livestock access points and the shortest trailing route across the Eli Spring section. This would be the easiest way for trailing livestock to avoid the wetlands supporting Rocky Mountain dandelion.

Recreational Opportunities and Public Access:

Replacing wire gates with cattle guards at three locations along designated motorized routes would provide the greatest benefit to the recreational user of this area by eliminating the need for them to open or close any gates.

Socioeconomics:

Socioeconomic costs would be the most expensive for under this alternative due to the costs incurred for the cattle guards, in addition to the supplies and labor described under Alternative B.

Unallotted – Ney Ranch

Alternative B

Riparian, Wetland, and Aquatic Habitat and Associated Species:

Utilizing livestock in a high-intensity, short-duration grazing system would remove decadent herbaceous vegetation and limit willow expansion into the wetland, by reducing the forage selectivity of the livestock. Authorizing a TNR grazing authorization when the ground is frozen would mitigate concerns regarding soil compaction and trampling damage to the duck ponds and dam structures. This would remain compatible with existing wildlife use and the Ducks Unlimited ponds by using electric fences to keep livestock out of the ponds and off of the pond dams, the use of prescribed fire would be preferable if it is determined to be feasible. Smoke concerns along I-15 may preclude this option.

Special Status Species:

There aren't any documented occurrences of sensitive plants on the Ney Ranch parcel, but habitat is present that may support meadow lousewort, Rocky Mountain dandelion, slender thelypody, Idaho sedge and mealy primrose. Occasional grazing "treatments" wouldn't be detrimental to these species and may even enhance growing conditions by removing some of the taller graminoids that may shade some of these species.

Unallotted – Small Horn Canyon

Alternative B

Upland Health, Sagebrush Steppe Habitat and Associated Species:

Effects of the proposed commercial harvest treatment would be the same as described above under the Conover AMP Allotment.

Riparian, Wetland, and Aquatic Habitat and Associated Species:

As in Conover, silvicultural prescriptions target harvest and removal of dead/dying trees, thinning of high density conifer stands, and harvest of conifers in and around aspen stands. Selective thinning and patch cutting as well as creation of breaks in continuous stands would minimize the potential for soil erosion. Water lost to transpiration and sublimation would more likely reach the soil surface and infiltrate. Sheep Creek tributaries would be subject to Streamside Management Zone requirements. Following these requirements would mitigate riparian impacts.

Special Status Species:

Northern Goshawk inventories will be conducted prior to any timber harvest and treatments will be designed to meet habitat requirements if goshawks are found. Treated stands would improve foraging quality for goshawks.

Socioeconomics:

Implementing the commercial harvest treatment would recover the economic value of the timber resource before it is lost due to mortality and decay.

4.3 Cumulative Effects for All Alternatives

Cumulative effects are those that result from adding the anticipated direct and indirect effects of the proposed action, to impacts from other past, present and reasonably foreseeable future actions. These additional impacts are considered regardless of what agency or person undertakes such actions. The Cumulative Impact Area (CIA) for this EA is defined as the southern portion of the Pioneer and Highland Mountains to the North, the Grasshopper Valley to the West, the Beaverhead Valley and Blacktail Mountains to the East, and the Horse Prairie and Red Rock Valleys to the South. The temporal boundary when analyzing cumulative impacts is ten years.

4.3.1 Past and Present Actions

Past or ongoing actions that are common to all alternatives and affect the same components of the environment as the proposed actions are:

- Severe over-trapping of beavers and unregulated livestock use during the late 1800s and early 1900s changed the character (hydrologically and vegetatively) of most mountain streams in the Intermountain West (Elmore and Beschta 1987; Elmore and Kaufman 1994; Naiman 1988). Although there are still active beaver colonies in the BWV, beaver activity is substantially reduced from historical levels.
- In the late 1890s and early 1900s, wolves and other large predators in the western United States were hunted, trapped and poisoned. The removal of large predators has increased the level of impact that elk and moose historically had on riparian areas (Ripple and Beschta 2004a, 2004b, 2005a, 2005b). Recent increases in wolf numbers in SW Montana may have a small effect on reversing this. However, wolf numbers are not likely to achieve the required density to greatly affect moose and elk distribution in the BWV.
- Exclusion of fire from the landscape (e.g. removal of fine fuels by livestock, coupled with fire suppression over the past century), has resulted in the increase in accumulation of fuel loads and reduced forest health.
- Watershed-wide, under all management schemes on all land ownerships, there has been and continues to be a decline in aspen. This is a west wide phenomenon that can be attributed primarily to a combination of successional processes including reduction (or elimination) of fire, loss of predator influence on herbivores, and long-term overuse by ungulates (Bartos and Campbell 1998; Beschta 2003; Ripple and Beschta 2004a, 2004b).
- There has been timber harvest, pole cutting, Christmas tree cutting, and firewood collecting in the past throughout the watershed.
- The total estimated forested area treated on BLM-administered lands in the past 30 years is about 500 acres across the watershed. The majority of this was lodgepole pine clearcuts and overstory removal in Black Mountain and Small Horn Canyon. There was also one Douglas-fir selection harvest unit and a salvage harvest of blowdown in Sheep Creek.
- The total estimated forested area treated on State of Montana lands in the past 30 years is about 400 acres. An unknown acreage of primarily lodgepole pine on USFS-administered lands has been harvested, primarily in the Black Mountain area, Grasshopper Valley, and west of Bannack. An unknown acreage of forested land has been harvested on private lands, primarily in the Grasshopper Valley and Small Horn Canyon/Sheep Creek.

- Elk and moose populations in southwest Montana have increased over the past 20-25 years, primarily as a result of light snow conditions during fall and winter.
- Livestock and wildlife impacts on lands upstream from BLM administered land may contribute sediment to streams and subsequently may adversely affect downstream water quality on public land.
- Road use and maintenance adjacent to or crossing streams have impacted some streams in the watershed by adding sediments and/or removing vegetation at the crossing or adjacent to the stream. Roads in the uplands allow opportunities for noxious and invasive weeds to become established and in isolated areas (steep slopes) contribute to soil erosion.
- Increased recreation has adversely impacted isolated areas within the watershed (camp sites, new trails and roads, spreading of weed seed, etc.).
- Existing and new stock water developments on all ownerships within the BWW will influence livestock distribution. In some cases secondary range will be converted to primary range which could increase grazing pressure on palatable sensitive plant species such as Lemhi beardtongue, Bitterroot milkvetch and railhead milkvetch. In areas where grazing management provides periodic deferment and/or rest that allow for seed production and seedling establishment the potential for increased herbivory may not be an issue. However populations of these species may be at risk in areas that are grazed season-long or where these plants may be grazed repeatedly while flowering.
- High probability habitats will be surveyed for sensitive plants prior to any ground disturbing activities on federal land but botanical surveys aren't required on private and state lands even on cooperative projects (e.g. a pipeline that crosses multiple ownerships). It's possible that sensitive plant species could be accidentally or inadvertently impacted by construction or placement of range improvement projects on non-federal lands. Indiscriminate or random placement of livestock supplements could also cause impacts to individual plants or populations across all ownerships.
- The use of insecticides on private lands within the BWW to control grasshoppers or other insects may affect pollinators that visit sensitive plant species on BLM lands.
- Continuing current water discharge patterns from Clark Canyon Reservoir will continue to impact fish populations and habitat downstream.
- The economic situation of the grazing permittees/lessees is affected by changes in livestock prices, hay prices, fuel prices, interest rates, land prices, labor costs, labor inputs, equipment costs, equipment maintenance costs, facilities maintenance costs, costs of feed supplements, irrigation costs and availability of irrigation water, livestock loss, private land lease rates, veterinary costs, local weather and other miscellaneous factors. Cumulative economic impacts to permittees may make the option to subdivide private land to maintain a cash flow more viable or desirable.
- Numerous water developments have been constructed on State Lands in the vicinity of the Rocky Hills allotment. Development of these additional water sources will help disperse livestock use through this area and result in heavier use on State of Montana lands than has occurred in the past due to stockwater availability. Water gaps on Grasshopper Creek have been provided on private lands to further increase water availability on the north side of the Rocky Hills allotment in the Madigan and Grasshopper pastures. These water gaps will provide another important water source for authorized livestock in this area and will influence grazing distribution patterns.

- The spring development on State of Montana Lands in Section 28, T8S, R11W has been dry for several years and will be abandoned. The two troughs from this development could be used for the new trough location for water from Canyon Spring as described under the Rocky Hills Allotment in Alternative B, if selected. The existing location of the dry spring on State land is located on the perimeter of the BLM Wilderness Study Area. A visitor standing in the WSA would have their wilderness and/or naturalness experience enhanced if the man made spring intrusion that is >½ mile away was removed and the “imprint of man” was reduced. From a purely visual perspective, removing this spring and troughs would eliminate an impairment of the existing wilderness values of the adjacent WSA and mitigate the Wilderness value intrusion associated with the proposal to relocate two troughs about 1 mile to the north on Canyon Spring.

4.3.2 Reasonably Foreseeable Future Actions

Reasonably foreseeable future actions that would cumulatively affect the same resources in the cumulative impact area as the proposed actions and alternatives are:

- The risk of wildfire on all ownerships will continue. Fire suppression efforts, utilizing Appropriate Management Response criteria, will continue on federally-administered lands in the watershed.
- Fencing on other land ownerships and on BLM boundaries may lessen the benefit of fence modification efforts on public lands to improve wildlife movements.
- Recreation, especially hunting, is expected to increase in the BWV in the future. Impacts expected from this increased use are new camp sites, spreading of weed seed, more use of roads and increased wildlife disturbance.
- Sub-dividing of private land within the watershed is currently occurring on a small scale. Although not expected to be extensive, subdivision is expected to expand in the foreseeable future. Sub-dividing and development causes habitat fragmentation, increases traffic, soil and vegetation disturbance, spread of noxious and invasive species, and other human uses in the area, and may increase the demand for water.
- The BLM plans to implement forest management activities in Shale Creek and Krueger Creek as analyzed in the Grasshopper Fuels Management EIS completed in June, 2005. Treatment in Shale Creek (212 acres) is anticipated to take place in 2008-2011; treatment in Krueger Creek (133 acres) is dependent on acquiring access across private property.
- The State of Montana is planning a 356-acre helicopter timber sale in the White Creek drainage (Grasshopper Valley) for 2009-2010, and a 20-acre permit sale on Carroll Hill in 2008.
- The Forest Service plans to implement fuels management activities in the Grasshopper Valley as analyzed in the Grasshopper Fuels Management EIS completed in June, 2005. This includes up to 1400 acres of thinning, slashing, and burning to protect the WUI in this area.
- A Notice of Intent was filed with BLM in 2007 for a 500 Kilovolt transmission line. There were numerous options suggested for the location of the power line that would begin in the vicinity of Townsend, Montana and travel into Idaho. The potential location for the power line has been narrowed to two options.
 - One proposed route lies just west of Interstate 15 and passes between Glen, Montana and the east side of Clark Canyon Reservoir. This route would pass

through portions of the Frying Pan, Hayden, Big Hole Road, Argenta Flats, Barretts, Grasshopper, Gallagher, and Pipe Organ Rock allotments. This route travels through areas with low populations of sage grouse and pygmy rabbits. Assuming a standard 3-mile buffer around sage grouse leks, this route would impact the area around 3 known leks. The route would also dissect occupied pygmy rabbit habitat. The primary negative influences from the transmission line to sage grouse and pygmy rabbits would result in an increase in the number of perches for predators in the area and dissect occupied habitat and make them more susceptible to predation.

- The other proposed route would cross the Big Hole River, just west of the Block Mountain ACEC, and cross Interstate 15 about 10 miles north of Dillon, Montana. From there, it would follow a route about 5 miles west of the previous proposal and would pass just west of Clark Canyon Reservoir. This route would pass through portions of the Frying Pan, Kennison Spring, Bell Ranch, Stonehouse, Frenchie, Red Spring, Anderson Field, and Rocky Hills allotments, and pass just east of the Henneberry Ridge WSA. This proposed route would intersect areas with moderate populations of sage grouse and pygmy rabbits. Assuming a standard 3-mile buffer around sage grouse leks, this route would impact the area around 7 known leks, and would pass through a considerable amount of occupied pygmy rabbit habitat. The primary negative influences from the transmission line to sage grouse and pygmy rabbits would result in an increase in the number of perches for predators in the area and dissect occupied habitat and make them more susceptible to predation.
- A water development project is planned on deeded property adjacent to the Barretts allotment (Map 3).
- There are no public lands along Grasshopper Creek; however impacts to the creek could occur as a result of land use practices occurring on BLM ground above the creek (e.g. the water gaps leading from public lands down to private lands directly adjacent to the creek). The highly erosive soils found in the area adjacent to Grasshopper Creek could become a source of sediment that could have an impact on fish habitat by reducing pool depth and filling in spawning gravels.
- Depending on market conditions, a commercial timber harvest is planned on deeded property near the proposed prescribed fire and commercial harvest units on Holland-Carrol Isolated.

4.3.3 Cumulative Effects of Alternative A – No Action (Continuation of Current Management)

The intermingling of private and state lands with public lands throughout the watershed ensures that activities outside the control of BLM will continue. Grazing on these lands at various times throughout the year will influence forage and cover availability, and distribution of seasonal wildlife uses. Although wildlife habitat needs are generally met within the watershed, this grazing may influence suitability and availability of that habitat on a localized basis or during a specific time frame.

4.3.4 Cumulative Effects of All Action Alternatives

Managing for larger, more productive cool-season grasses by changing the frequency, timing, duration and/or intensity of livestock grazing on specific allotments would leave more cover and forage for wildlife species and may slightly change patterns of use in specific areas within the watershed. Additional off-site water locations would better disperse livestock use in specific areas within the watershed and reduce use in riparian areas.

Managing to improve riparian conditions throughout the watershed would allow for better dispersal of wild ungulates and reduce site specific riparian impacts. The proposed changes in livestock management would generally improve riparian function on BLM-administered land and other lands within BLM allotments at varying degrees and timeframes. The expected effect to downstream riparian habitats and water quality would be improved sediment transport, better access to floodplains, dissipation of energy and, over time, improvements in channel morphology.

The effects of implementation of the selected alternative would be quantitatively determined by monitoring physical and vegetative indicators of riparian and upland function, and monitoring vegetative components of habitat.

The water development adjacent to the Barretts allotment will influence livestock grazing distribution within the allotment by providing an alternative water source. This would increase disturbance around the new trough location, but should reduce livestock impacts in other areas of the pasture.

Slightly increased labor costs are assumed under Alternatives B, C, and D to implement and monitor the allowable use guidelines. During periods of drought, the total authorized AUMs may not be available.

Many of the fences identified as barriers to wildlife movement are boundary fences between BLM-administered lands and adjacent landowners. Modifying, replacing, or removing barrier fences would mitigate the presence of barriers and collision/entanglement hazards on public lands and would be done in coordination with adjacent landowners as they are identified. The action alternatives are proposing to add about four miles of new fence (built in accordance with BLM specifications for wildlife).

If fewer AUMs were authorized on BLM-administered lands, livestock would have to be pastured elsewhere for part of the grazing season or the herd size may have to be reduced. Reducing authorized AUMs may increase livestock use on private property adjacent to or near public lands. When viewing the watershed as a whole, this may directly affect similar resources on private property and offset the benefits to public land. If private livestock numbers were permanently reduced, a decrease in Beaverhead and Madison County tax revenues may result.

4.3.5 Cumulative Effects of Alternatives B

This alternative includes structural projects, vegetation treatments, and management changes on 26 grazing allotments and three unallotted parcels. Since many of the allotments within the

BWW are intermingled with state and private lands, improvements to resource conditions resulting from management changes and projects would produce benefit across all ownerships.

Forest health treatments completed on BLM-administered lands and other ownerships would increase the diversity of forest structure and composition throughout the BWW. This increase in structural diversity across the landscape would likely result in a more patchy spruce budworm outbreak regime in the future (Swetnam and Lynch 1989). Treatment in lodgepole pine to remove bark beetle infested trees and promote regeneration of a new stand would result in patches of lodgepole pine across the landscape that would be resistant to mountain pine beetle for up to 80 years (Mata et al. 2003). Increasing structural and compositional diversity across the landscape as a result of forest treatments and prescribed burning decreases the probability of large-scale disturbances that produces negative impacts over a large area. Large-scale disturbances would still have the potential to occur; however, areas treated would create buffers of less susceptible (in terms of insects/disease) and more fire resilient habitats.

4.3.6 Cumulative Effects of Alternatives C

This alternative includes projects and management changes on 15 grazing allotments and the unallotted Eli Springs parcel. The investment in projects, however, is similar to that in Alternative B. Alternative C, generally, contains more intensive management practices and/or more structural projects to help mitigate resource concerns.

Abandoning and reclaiming the Canyon and Rocky Point springs, on the Rocky Hills allotment would eliminate an important livestock watering source which would increase livestock use at other available water sources within the pasture. This would include the new water sources on State Lands as well as the water gaps on deeded property along Grasshopper Creek. This use would likely lead to increased sediment input from the water gaps into Grasshopper Creek.

4.3.7 Cumulative Effects of Alternatives D

This alternative involves range improvement projects and livestock grazing management changes on the Gallagher and Scudder Creek AMP allotments. Both alternatives would require the permittees to arrange for alternate sources of pasture for a period of time, but neither alternative is expected to have significant economic consequences. Many of the surrounding watersheds have already been assessed and management changes have been implemented, where concerns were identified, to improve resource conditions. Improving upland and riparian health on these two additional allotments would improve natural processes and better support the multiple uses for which they are managed.

5.0 List of Preparers - Consultation/Coordination

5.1 List of Preparers

5.1.1 Core IDT members:

Brian Thrift	Rangeland Management Specialist – IDT Leader
Aly Piwowar	Forester
George Johnson	Fuels Specialist
Kelly Bocking	Wildlife Biologist (TES-Wildlife)
Stephen Armiger	Hydrologist (Soil, Water, & Air)
Ryan Martin	Rangeland Management Specialist
Bart Howells	Rangeland Management Specialist
Pat Fosse	Supervisory Natural Resource Specialist

5.1.2 Support IDT members include:

Paul Hutchinson	Fisheries Biologist
Michael Mooney	Weeds Specialist
Joe Casey	Forester (since retired)
Jim Roscoe	Wildlife Biologist (since retired)
Jason Strahl	Archaeologist
Kipper Blotkamp	Fuels Specialist
Laurie Blinn	GIS Specialist
Rick Waldrup	Outdoor Recreation Planner
Brian Hockett	Rangeland Management Specialist (TES-Plants)
Bob Gunderson	Geologist

5.2 Consultation/Coordination

5.2.1 Persons and Agencies Consulted

Reyer Rens	Rangeland Management Specialist, USFS
Ken Scalzone	Soil Scientist, NRCS
Dick Oswald	Fisheries Biologist, Montana FWP
Craig Fager	Game Biologist, Montana FWP
Vana Boccadori	Game Biologist, Montana FWP
Bob Brannon	Game Biologist, Montana FWP
Chuck Barrone	Forester, Montana DNRC
Chuck Maddox	Land Use Specialist, Montana DNRC
John Murray	THPO, Blackfeet Tribe
Arlene Caye	Confederated Salish and Kootenai Tribes
Francis Auld	Confederated Salish and Kootenai Tribes
Carolyn Boyer Smith	Cultural Resource Coordinator, Shoshone-Bannock Tribes
Yvette Tuell	Environmental Program Manager, Shoshone Bannock Tribes
Richard & Sherry Nyhart Smith	Point of Rocks Angus Ranch
Todd Holland	Holland Ranch Company
Randy Rieman	Ranch Manager
Mike & Mark Raffety	Raffety Cattle Company

Tex Marchesseau	Marchesseau Ranch
Tom Rice	Windmill Livestock
Steve Harrison & Randy Fassler	Ranch Managers, Natural Guardian, LP
Lorie Zimdars	Rancher
Mark Harrington	Harrington Company
Jo Gendreau	Hayden, LLC
Harold Brown	Rancher

5.2.2 Notifications

Internet NEPA Log – Dillon Field Office – July 2007

Mailing List for BWW Assessment

Media Releases in Southwest Montana – May 2007 and December 2007

5.2.3 Statement of Public Interest

Several individuals and groups have expressed interest in this proposed action. The mailing list of individuals and groups who have expressed interest to date is available at the Dillon Field Office.

Glossary of Terms

actual use: a report of the actual livestock grazing use certified to be accurate by the permittee or lessee. Actual use may be expressed in terms of animal months or animal months.

adaptive management: management in which monitoring measures progress toward or success at meeting an objective and provides the evidence for management change or continuation. In practice, most monitoring measures the change or condition of the resource; if objectives are being met, management is considered effective.

allotment: an area of land designated and managed for grazing livestock.

allotment management plan (AMP): a documented program which applies to livestock grazing on the public lands, prepared by consulting, cooperating, and coordinating with the permittee(s), lessee(s), or other interested publics.

analysis: (1) a detailed examination of anything complex in order to understand its nature or determine its essential features; or (2) a separating or breaking up of any whole into its component parts for the purpose of examining their nature, function, relationship, etc. A rangeland analysis includes an examination of both biotic (plants, animals, etc.) and abiotic (soils, topography, etc.) attributes of the rangeland.

animal unit month (AUM): the amount of dry forage required by one animal unit for one month, based on a forage allowance of 26 pounds per day.

apparent trend: an assessment, using professional judgment, based on a one-time observation. It includes consideration of such factors as plant vigor, abundance of seedlings and young plants, accumulation or lack of plant residues on the soil surface, and soil surface characteristics (i.e., crusting, gravel pavement, and sheet or rill erosion).

atmospheric maintenance: wetlands store carbon within their live and preserved (peat) plant biomass instead of releasing it to the atmosphere as carbon dioxide, a greenhouse gas affecting global climates.

authorized officer: The manager of a defined portion of public land. For example, the Dillon Field Manager is the Authorized Officer or line manager for the public lands administered by the Dillon Field Office.

biogeochemical cycling: biologic, physical, and chemical transformations of various nutrients within the biota, soils, water, and air. Wetlands are very important in this regard, particularly relating to nitrogen, sulfur, and phosphorous

browse: (1) the part of shrubs, half shrubs, woody vines, and trees available for animal consumption; or (2) to search for or consume browse.

browse plant or browse species: a shrub, half shrub, woody vine, or tree capable of producing shoot, twig, and leaf growth suitable for animal consumption.

canopy cover: the percentage of ground covered by a vertical projection of the outermost perimeter of the natural spread of foliage of plants. Small openings within the canopy are included. Canopy cover is synonymous with crown cover.

community: an assemblage of populations and/or animals in a common spatial arrangement.

cool season species: plants whose major growth occurs during the late fall, winter and early spring.

ecological functions: atmospheric maintenance, biogeochemical cycling, floodwater retention, groundwater recharge, sediment trapping

ecological processes: processes which play an essential role in maintaining ecosystem integrity. four fundamental ecological processes are the cycling of water, the cycling of nutrients, the flow of energy and biological diversity (as an expression of evolution).

evaluation: (1) an examination and judgment concerning the worth, quality, significance, amount, degree, or condition of something; or (2) the systematic process for determining the effectiveness of on-the-ground management actions and assessing progress toward meeting objectives.

forage: (1) browse and herbage which is available and can provide food for animals or be harvested for feeding; or (2) to search for or consume forage.

forb: (1) any herbaceous plant other than those in the Gramineae (true grasses), Cyperaceae (sedges), and Juncaceae (rushes) families—i.e., any non-grass-like plant having little or no woody material on it; or (2) a broadleaved flowering plant whose above ground stem does not become woody and persistent.

functional at risk (FAR): riparian wetland areas that are functional, but an existing soil, water, or vegetation attribute makes them susceptible to degradation.

goal: the desired state or condition that a resource management policy or program is designed to achieve. A goal is usually not quantifiable and may not have a specific date by which it is to be completed. Goals are the base from which objectives are developed. (See objective)

grazing system: a systematic sequence of use and non use of an allotment.

greenline: the first perennial vegetation that forms a lineal grouping of community types on or near the water's edge. Most often it occurs at or slightly below the bankfull stage.

herbaceous: vegetation growth with little or no weedy component; non-woody vegetation such as graminoids and forbs.

hot season: in southwest Montana, hot season grazing use is generally considered to include July 1 through September 15.

hummock: a mound rising above the surrounding land, usually overgrown with vegetation. In the southeast, a small hill or mound, also referred to as hammock. Often used in reference to marsh lands.

hydric soil: soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part.

hydrologic heaving: The lifting of a surface by the internal action of frost or hydrostatic pressure. The process is exacerbated when there is compaction between plant tussocks, (e.g. hoof action) or excessive removal of vegetation. The result is the hummocked appearance of plants being elevated above the normal ground surface, rootshearing between plants, and exposure of interspaces to increased erosional forces.

interested public: an individual, group or organization that has submitted a written request to the authorizing officer to be provided an opportunity to be involved in the decision making process for the management of livestock grazing on specific grazing allotments, or has submitted written comments to the authorized officer regarding the management of livestock grazing on a specific allotment.

interpretation: explaining or telling the meaning of something and presenting it in understandable terms.

inventory: the systematic acquisition and analysis of information needed to describe, characterize, or quantify resources for land-use planning and management or the public lands.

key area: “Key areas are indicator areas that are able to reflect what is happening on a larger area as a result of on-the-ground management actions. A key area should be a representative sample of a larger stratum, such as a pasture, grazing allotment, wildlife habitat area, herd management area, etc., depending on the management objectives being addressed by the study....”

lentic: standing or still water such as lakes and ponds.

lotic: flowing or actively moving water such as rivers and streams.

monitoring: the orderly collection, analysis, and interpretation of resource data to evaluate progress toward meeting objectives.

objective: planned results to be achieved within a stated time period. Objectives are subordinate to goals, are narrower in scope and shorter in range, and have increased possibility of attainment. The time periods for completion, and the outputs or achievements that are measurable and quantifiable, are specified. (See goal)

palustrine: inland, nontidal wetlands characterized by the presence of trees, shrubs, and emergent vegetation (vegetation that is rooted below water but grows above the surface). Palustrine wetlands range from permanently saturated or flooded land (as in marshes, swamps, and lake shores) to land that is wet only seasonally (as in vernal pools).

pasture: a grazing area enclosed and separated from other areas by a fence or natural barrier.

primary range: areas which animals prefer to use when management is limited. Primary range will be overused before secondary range is fully used. See also “secondary range.”

proper functioning condition (PFC): Lotic riparian-wetland areas are considered to be in proper functioning condition when adequate vegetation, landform, or large woody debris is present to:

- Dissipate stream energy associated with high waterflow, thereby reducing erosion and improving water quality;
- Filter sediment, capture bedload, and aid floodplain development;
- Improve flood-water retention and ground-water recharge;
- Develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses;
- Support greater biodiversity

public lands: any land interest in land outside of Alaska owned by the United States and administered by the Secretary of the Interior through the Bureau of Land Management (see 43 CFR 41000.0-5)

resource reserve allotment: a unit of public land that will not have term grazing permits issued. Such an allotment would only be grazed on a temporary nonrenewable basis. The use of these allotments would be to provide temporary grazing to rest other areas following wildfire, habitat treatments, or to allow for more rapid attainment of rangeland health. The allotment must be of sufficient size to be managed as a discrete unit.

riparian zone: the banks and adjacent areas of water bodies, water coursed, seeps, and springs whose waters provide soil moisture sufficiently in excess of that otherwise available locally so as to provide a moister habitat than that of contiguous flood plains and uplands.

secondary range: – areas which is lightly used or unused by livestock under minimal management and which will ordinarily not be fully used until the primary range has been overused. See also “primary range.”

shrub: a plant that has persistent woody stems and a relatively low growth habit, and that generally produces several basal shoots instead of a single bole. It differs from a tree by its low stature—less than 5 meters (16 feet)—and non-arborescent form.

shrubland: land on which the vegetation is dominated by shrubs. Non-forested lands are classified as shrubland if shrubs provide more than 20 percent of the canopy cover, excluding trees. Lands not presently shrubland that were originally or could become shrubland through natural succession may be classified as potential natural shrubland.

spring brook: a channel that carries water from a spring. Where there is sufficient flow, the channel forms a perennial stream. Frequently in arid environments, the flow is insufficient to create a perennial stream. Groundwater emerges at the springhead, flows a short distance within the spring brook, and then submerges.

succession: the orderly process of community change; it is the sequence of communities that replace one another in a given area.

trend: the direction of change in ecological status or in resource value ratings observed over time. Trend in ecological status is described as “toward” or “away from” the potential natural community or as “not apparent.” Appropriate terms are used to describe trends in resource value ratings. Trends in resource value ratings for several uses on the same site at a given time may be in different directions, and there is no necessary correlation between trends in resource value ratings and the trend in ecological status.

understory: plants growing beneath the canopy of other plants; usually refers to grasses, forbs, and low shrubs under a tree or shrub canopy.

use guideline: (1) a degree of utilization of current year’s growth which, if continued, will achieve objectives and maintain or improve the long-term productivity of the site; or (2) the percentage of a plant that is utilized when the rangeland as a whole is properly utilized. This use level can vary with time and systems of grazing.

utilization: the proportion or degree of the current year’s forage production by weight that is consumed or destroyed by animals (including insects). The term may refer either to a single plant species, a group of species, or the vegetation community as a whole. Utilization is synonymous with use.

vigor: relates to the relative robustness of a plant in comparison to other individuals of the same species. It is reflected primarily by the size of a plant and its parts in relation to its age and the environment in which it is growing.

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